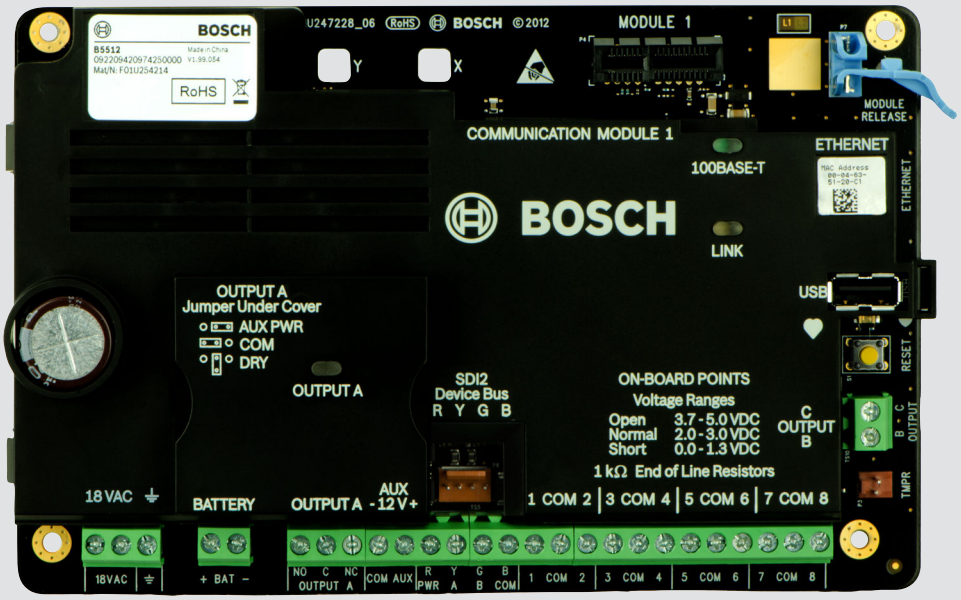

Control Panel

B5512/B4512/B3512

BOSCH

en Installation and System Reference Guide

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1 Certifications, approvals, listings, and safety

1.1 Certifications and approvals

This document includes the section *Approved applications, page 91*. Refer to this section for guidelines on installing the control panels in Underwriters Laboratories Inc. (UL) and fire-specific applications.

1.2 Listings and approvals

1.2.1 UL

Listed for:

- UL 365 - Police Station Connected Burglar Alarm Units and System
- UL 609 - Local Burglar Alarm Units and System
- UL 636 - Holdup Alarm Units and System
- UL 985 - Household Fire Warning System Units
- UL 1023 - Household Burglar Alarm Units and System
- UL 1076 - Proprietary Burglar Alarm Units and System
- UL 1610 - Central Station Burglar Alarm Units
- UL 1635 - Digital Alarm Communicator System Units
- UL 2017 - General-Purpose Signaling Devices and Systems

1.2.2 ULC

Listed for:

- ULC C1023 - Household Burglar Alarm System Units
- ULC C1076 - Proprietary Burglar Alarm Units and System
- ULC S303 - Local Burglar Alarm Units and System
- ULC S304 - Central and Monitoring Station Burglar Alarm Units
- ULC S545 - Residential Fire Warning System Control Units

1.2.3 Security Industry Association (SIA)

Listed for Control Panel Standard - Features for False Alarm Reduction ANSI/SIA CP-01-2010.

1.2.4 Department of Defense (DoD)

The B5512/B4512/B3512 control panels were granted approval for Department of Defense (DoD) installations in Sensitive Compartmented Information Facilities (SCIF).

1.2.5 California State Fire Marshal (CSFM)

Listed for Household Fire Alarm.

1.2.6 National Institute of Standards and Technology (NIST)

When communicating via a network, listed for Advanced Encryption Standard (AES), Federal Information Processing Standards Publication 197 (FIPS 197).

1.2.7 Federal Communications Commission (FCC) Rules

Part 15

This equipment was tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy; and if not installed and used according to the instructions, can cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user is required to correct the interference at his or her own expense**.**

Part 68
The B430 module by Bosch Security Systems, Inc. is registered with the Federal Communication Commission (FCC) under Part 68, for connection to the public telephone system using an RJ31X or RJ38X phone line connection jack installed by the local telephone company.
Do not connect registered equipment to party lines or coin-operated telephones. Notify the local telephone company and provide the following information before connecting the control panel to the telephone network:

- The particular line to which you connect the module
- Make (Bosch Security Systems, Inc.), model (B5512/B4512/B3512), and serial number of the control panel
- FCC registration number: ESVAL00BB430
- Ringer eq: 0.0B

1.2.8 Industry Canada (IC)

ICES-003 - Information Technology Equipment
This Class A digital equipment meets all requirements of the Canadian interference-causing equipment regulations.
Cet appareil numérique de la Class A respecte toutes les exifences de règlement sue le matériel brouilleur du Canada.
CS-03 - Compliance Specification for Terminal Equipment
This product meets the applicable Industry Canada technical specifications. The Ringer Equivalence Number (REN) is an indication of the maximum number of devices allowed to be connected to a telephone interface. The termination of an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices not exceed five.
Le présent matériel est conforme aux specifications techniques applicables d'Industrie Canada.
L'indice d'équivalence de la sonnerie (IES) sert à indiquer le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas cinq.

1.3 Lightning

The B5512/B4512/B3512 control panels design significantly reduces the adverse effects of lightning. Taking installation precautions can further reduce these adverse effects.

1.3.1 Effects

Lightning can directly strike any electronic system, or lightning strikes near a system can adversely affect the system. When lightning strikes, several things happen:

- An electromagnetic wave spreads from the point of the strike inducing high voltages in nearby conductors.
- The voltage changes substantially on electrical grounds near the lightning strike.
- High voltages are induced in anything directly struck by lightning.

The effects of lightning can include trouble events, alarm events, and physical damage.

1.3.2 Installation precautions

To minimize the undesirable effects from lightning:

- Do not run wiring outside the building.
- If you install the unit in a metal building, keep the wiring at least 2 ft (0.61 m) away from external metal surfaces. Make a proper earth ground connection.
- Earth ground the unit correctly. Do not use an electrical ground or telephone ground.
- Avoid running wires near telephone, data, or power lines. Locating control panel wiring at least 2 ft (0.61 m) away helps reduce the effects of lightning.
- When your data lines must cross the path of AC or other wiring, cross the lines perpendicularly.

2 Introduction

2.1 About documentation

This document contains instructions for a trained installer to properly install, configure, and operate this control panel, and optional peripheral devices. Review this document before beginning the installation to determine the hardware and wiring requirements for the features used.
(Bosch security Systems, Inc. recommends that installers follow good wiring practices such as those descibed in NFPA 731, Standard for the Installation of Electronics Premises Security Systems.)
Throughout this document, the words “control panel” refer to all control panels covered by this document (B5512/B5512E/B4512/B4512E/B3512/B3512E).

Notifications
This document uses Notices, Cautions, and Warnings to draw your attention to important information.

Notice!
These include important notes for successful operation and programming of equipment, or indicate a risk of damage to the equipment or environment.

Caution!
These indicate a hazardous situation which, if not avoided, could result in minor or moderate injury.

Warning!
These indicate a hazardous situation which, if not avoided, could result in death or serious injury.

Copyright
This document is the intellectual property of Bosch Security Systems, Inc. and is protected by copyright. All rights reserved.

Trademarks
All hardware and software product names used in this document are likely to be registered trademarks and must be treated accordingly.

2.1.1 Related documentation

To obtain any of the documents listed in this section, download them from the web.
Downloading documentation:

1. Go to the Bosch website (us.boschsecurity.com).
2. In the Search text box on the right side of the page, enter the CTN for the product for which you wish to download the documentation.
3. Press [ENTER].
4. If you see the desired document in the search results, click the link for the document to open it. Otherwise, click the desired product’s Product Page button. The product page opens with the Details tab selected.

5. Click on the Documents tab, and then click the desired language listed to the right of the desired document.

Call Bosch Security Systems, Inc., Technical Support (1-800-289-0096) if you need additional assistance.

Control panel documents

Control Panels (B5512/B4512/B3512) Release Notes (P/N: F01U299696)*
Control Panels (B5512/B4512/B3512) Installation and System Reference Guide (this document) (P/N: F01U287180)+
Control Panels (B5512/B4512/B3512) Owner's Manual (P/N: F01U287181)* +
Control Panels (B5512/B4512/B3512) Program Entry Guide (P/N: F01U287183)+
Control Panels (B5512/B4512/B3512) UL Installation Guide (P/N: F01U287185)* +
Control Panels (B5512/B4512/B3512) SIA Quick Reference Guide (P/N: F01U287184)* +
*Shipped with the control panel. +Located on the documentation CD shipped with the control panel.

Keypad documents

Basic Keypad (B915) Installation Guide (P/N: F01U297873)*
Two-line Alphanumeric Keypad (B920) Installation Guide (P/N: F01U265450)*
Two-line Capacitive Keypad with Inputs (B921C) Installation Guide (P/N: F01U285416)*
ATM Style Alphanumeric Keypad (B930) Installation Guide (P/N: F01U265451)*
Touch Screen Keypad (B942/B942W) Installation Guide (P/N: F01U294527)*
*Shipped with the keypad.

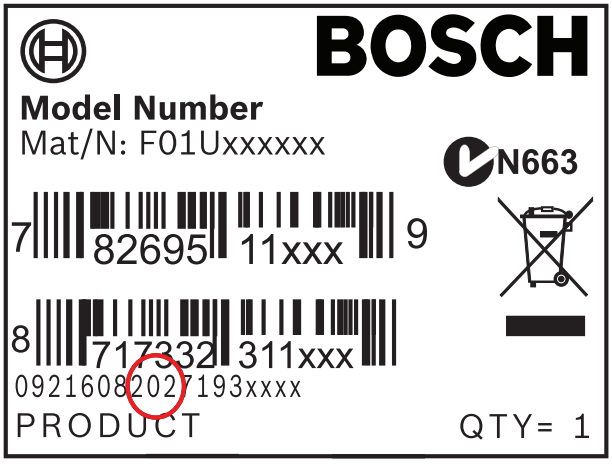
Optional module documents

2-wire Powered Loop Module (B201) Installation and Operation Guide (P/N: F01U301248)*
Octo-input Module (B208) Installation and Operation Guide (P/N: F01U265456)*
Octo-output Module (B308) Installation and Operation Guide (P/N: F01U265458)*
Conettix Ethernet Communication Module (B426) Installation and Operation Guide (P/N: F01U281208)* +
Plug-in Telephone Communicator (B430) Installation Guide Installation Guide (P/N: F01U265454)*
Conettix Plug-in Cellular Communicator (B440) Installation and Operation Guide (P/N: F01U265455)*
Conettix Plug-in CDMA Cellular Communicator (B441) Installation and Operation Guide (P/N: F01U282233)*
Conettix Plug-in GPRS Cellular Communicator (B442) Installation and Operation Guide (P/N: F01U283180)*
Conettix Plug-in HSPA+ Cellular Communicator (B443) Installation and Operation Guide (P/N: F01U283181)*

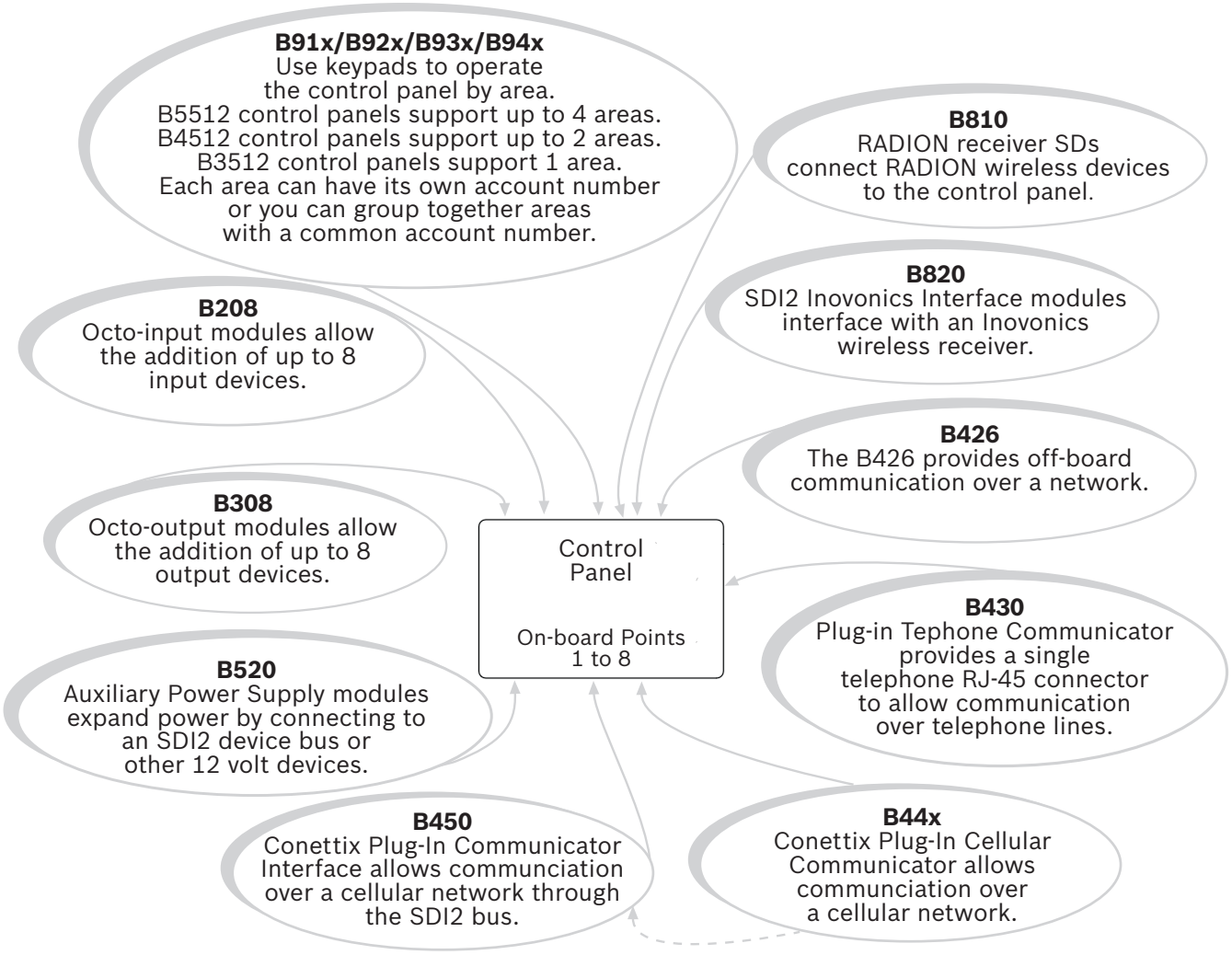
Conettix Plug-in Communicator Interface (B450) Installation and Operation Guide (P/N: F01U300740)* †
Auxiliary Power Supply (B520) Installation and Operation Guide (P/N: F01U265445)*
RADION receiver SD (B810) Installation Guide (P/N: F01U261834)*
SDI2 Inovonics Interface Module (B820) Installation Guide (P/N: F01U265460)*
*Shipped with the module. †Located on the documentation CD shipped with the module.

2.2 Bosch Security Systems, Inc. product manufacturing dates

Use the serial number located on the product label and refer to the Bosch Security Systems, Inc. website at http://www.boschsecurity.com/datecodes/.
The following image shows an example of a product label and highlights where to find the manufacturing date within the serial number.



3 System overview



3.1 Configuration and parts

3.1.1 Control panel capacities

Features	B5512	B4512	B3512
Number of users	50	32	10
Number of custom functions	4	2	1
Number of areas	4	2	1
Number of points	48	28	16
Number of outputs	43	27	3
Number of keypads	8	8	4
Number of B208 Octo-input Modules	4	2	0
Number of B308 Octo-output Modules	5	3	0
Number of on-board Ethernet ports (E control panel variants do **not** include an Ethernet port)	1	1	1
Number of B426 Conettix Ethernet Communication Modules or B450 Conettix Plug-in Communicator Interfaces	1	1	1
Number of B430 Plug-in Telephone Communicators or B440 Conettix Plug-in Cellular Communicators or B441 Conettix Plug-in CDMA Cellular Communicators or B442 Plug-in GPRS Cellular Communicator or B443 Plug-in HSPA+ Cellular Communicator	1	1	1
Number of B520 Auxiliary Power Supply Modules	4	2	2
Number of RADION receiver SDs (B810) or B820 SDI2 Inovonics Interface Modules	1	1	1

3.1.2

Parts list

Control panels ship assembled from the factory with the following parts:

Literature

- *Control Panels (B5512/B4512/B3512) UL Installation Guide*
- *Control Panels (B5512/B4512/B3512) Owner's Manual*
- *Control Panels (B5512/B4512/B3512) SIA Quick Reference Guide*
- *Control Panels (B5512/B4512/B3512) Documentation CD*
- *Enclosure Wiring Label (B5512/B4512/B3512)*

HW pack

- Mounting clips
- EOL resistors
- Battery wires
- Four #6 x 3/4 in self threading screws

Assembly

- PC board

3.1.3 Order separately

Order the accessories listed below to aid in the installation of your control panel. If you ordered your control panel in a kit, you might already have these parts.

- B91x/B92x/B93x/B94x keypad
- 18VAC, 22VA approved plug-in transformer
- D126 or D1218 Battery
- B430 Plug-in Telephone Communicator or a B440 Conettix Plug-in Cellular Communicator/B441 Conettix Plug-in CDMA Cellular Communicator/B442 Plug-in GPRS Cellular Communicator/B443 Plug-in HSPA+ Cellular Communicator
- D161 or D162 Phone Cord
- B10 Medium Control Panel Enclosure or B11 Small Control Panel Enclosure

3.2 Accessories

Compatible accessories

CTN	Name	UL 985 Fire	Intrusion	cUL
B10	Medium Control Panel Enclosure	x	x	x
B11	Small Control Panel Enclosure	x	x	x
B12	Mounting Plate for D8103 Enclosure			
B201	2-wire Powered Loop Module[1]	X	X	x
B208	Octo-input Module	x	x	x
B308	Octo-output Module	x	x	x
B426	Conettix Ethernet Communication Module	x	x	x
B430	Plug-in Telephone Communicator	x	x	x
B440	Conettix Plug-in Cellular Communicator	x	x	
B441	Conettix Plug-in CDMA Cellular Communicator	x	x	
B450	Conettix Plug-in Communicator Interface	x	x	x
B520	Auxiliary Power Supply Module	x	x	x
B810	RADION receiver SD[2]	x	x	
B820	SDI2 Inovonics Interface Module[3]	x	x	
B915	Basic Keypad	x	x	x
B920	Two-line Alphanumeric Keypad (SDI2)	x	x	x
B921C	Two-line Capacitive Keypad with Inputs (SDI2) (B921CW white)[4]	x	x	x
B930	ATM Style Alphanumeric Keypad (SDI2)	x	x	x
B942	Touch Screen Keypad (B942W white)			
CX4010	UL Listed Class 2 Transformer 18 VAC 22 VA 60 Hz	x	x	
D125B	Dual Class B Initiating Module[5]	x	x	x

CTN	Name	UL 985 Fire	Intrusion	cUL
D126	Battery (12.0 VDC, 7 Ah)			
D1218	Battery (12 V, 18 Ah)			
D161	Phone Cord			
D162	Phone Cord			
D130	Auxiliary Relay Module	x	x	x
D132A	Smoke Detector Reversing Relay Module	x		
D133	Single Relay Module	x	x	
D134	Dual Relay Module	x	x	
FCC-380	Carbon Monoxide Detector (example of UL listed device, other UL listed devices are available)	x		
F220-P with F220-B6	Photoelectric Smoke Detector with Detector Base (example of UL listed detector, other UL listed detectors are available)	x		
HUB	Potter HUB Holdup Button (example of UL listed holdup device, other UL listed devices are available)		x	
ICP-EZTS	Tamper Switch	x	x	x
ICP-TR1822-CAN	Plug-in Transformer 120 VAC primary, 18 VAC 22 VA secondary			x
ISC-BDL2-WP12	Blue Line Gen2 Pet Friendly TriTech Motion Detector (example of UL listed detector, other UL listed devices are available)		x	x
MB-G6-12-R	Wheelock MB Series 12V 6 " Fire Bell (Red) (example of UL listed device, other UL listed devices are available)	x		
5110/4001-42	Rothenbuhler High Security Bell		x	
Latin America:				
B442	Plug-in GPRS Cellular Communicator	x	x	x
Canada:				
B443	Plug-in HSPA+ Cellular Communicator	x	x	x

[1] Refer to the *2-wire Powered loop Module (B201) Installation Guide* (P/N: F01U296412) for compatible B201 devices.
[2] Refer to the section within this section for compatible RADION devices.
[3] Refer to the section within this section for compatible Inovonics devices.
[4] Only ULC listed for Proprietary Burglary and Residential Fire.
[5] Refer to the *Dual Class B Inititating Module (D125B) Installation Instructions* (P/N: F01U036340) for compatible D125B devices.

B810 wireless receiver compatible accessories

Refer to *RADION receiver SD (B810) Installation Guide*.

Model	Name	Description
RFBT-A	RADION specialty	Bill trap
RFDL-11-A	RADION TriTech	Motion detector
RFDW-RM-A	RADION contact RM	Door/window contact
RFDW-SM-A	RADION contact SM	Recessed door/window contact
RFGB-A	RADION glassbreak	Glassbreak detector
RFIN-A	RADION inertia[1]	Intertia detector
RFKF-FB-A	RADION keyfob FB	Four-button keyfob
RFKF-TB-A	RADION keyfob TB	Two-button keyfob
RFPB-SB-A	RADION panic SB	Single button panic
RFPB-TB-A	RADION panic TB	Two button panic
RFRP-A	RADION repeater	Repeater
RFSM-A	RADION smoke[2]	Smoke detector
RFPR-12-A	RADION PIR	PIR detector
RFPR-C12-A	RADION PIR C	PIR curtain detector
RFUN-A	RADION universal	Universal transmitter

[1] Not investigated by UL.
[2] UL 985 only.

B820 SDI2 Inovonics Interface Module compatible accessories

Model	Name
EN1210	Universal Transmitter (Single-input)
EN1210EOL	Universal Transmitter with EOL Resistor
EN1210W	Door-Window Transmitter with Reed Switch
EN1215EOL	Universal Transmitter with Wall Tamper and EOL Resistor
EN1215WEOL	Door-Window Transmitter with Wall Tamper, Reed Switch, and EOL Resistor
EN1223D	Water-resistant Pendant Transmitter (Double-button)
EN1223S	Water-resistant Pendant Transmitter (Single-button)
EN1224-ON	Multiple-Condition Pendant Transmitter
EN1233D	Necklace Pendant Transmitter (Double-button)
EN1233S	Necklace Pendant Transmitter (Single-button)
EN1235D	Beltclip Pendant Transmitter (Double-button)
EN1235DF	Fixed-location Transmitter (Double-button)
EN1235S	Beltclip Pendant Transmitter (Single-button)
EN1235SF	Fixed-location Transmitter (Single-button)
EN1242	Smoke Detector Transmitter
EN1247	Glass-break Detector Transmitter
EN1249	Bill Trap Transmitter
EN1260	Wall Mount Motion Detector
EN1261HT	High Traffic Motion Detector
EN1262	Motion Detector With Pet Immunity
EN1265	360° Ceiling Mount Motion Detector
EN4200	Serial Receiver
EN4204R	Four Zone Add-on Receiver With Relay Outputs
EN5040-T	High Power Repeater With Transformer
EN7016	Wireless Survey Kit
ENKIT-SDI2	B820 and EN4200 Kit

Notice!
No wireless detectors have been approved for use with alarm verification points.
For specific installation and operation instructions, please refer to manufacturers' manuals.

3.3 Features

3.3.1 SDI2 interconnect wiring

Most SDI2 modules include one or two interconnect wiring connectors. You can use these connectors to connect the modules to the control panel, and then to each other, without having to connect wires individually to the SDI2 terminals. For installations using multiple SDI2 modules in the same enclosure, interconnect wiring makes the installation quicker and easier than using terminal strip wiring. Each SDI2 module that has an SDI2 interconnect wiring connector comes with a 12 in (30 cm) interconnect cable.

3.3.2 Points

B5512 control panels provide up to 48 points of protection. B4512 control panels provide up to 28 points of protection. B3512 control panels provide up to 16 points of protection. Point programming parameters determine the control panel's response to open and shorted conditions on the sensor loop for the point. Several options allow individual point programming to custom-fit the protection to the installation.
The control panel has eight on-board points, points 1 to 8.
The SDI2 bus allows for the remaining off-board points. For example, the SDI2 bus supports a combination of B208 Octo-input Modules, and a B810 wireless receiver.

Caution!
Any points programmed as fire supervisory points are latching. A latching point requires acknowledgment before it can be cleared.

3.3.3 Areas and accounts

B5512 control panels support up to 4 areas. B4512 control panels support up to 2 areas. B3512 control panels support 1 area. You can assign all points to a single area or distribute them over multiple areas.
Users can turn areas on and off individually or together. You can assign an authority level to a user that allows the user to turn an area on from a remote keypad in another area.
Assigning each area its own account number creates up to 4 separate accounts in the B5512, and up to 2 separate accounts in the B4512. Assigning the same account number to different areas groups them together in a single account.
Area options include exit tone and delay, separate fire and burglary outputs, and multiple opening and closing windows. Use area types to create area relationships.
For systems with more than one area, all areas must be under the responsibility of one ownership and management. This may be a group of buildings attached or unattached and may even have different addresses but are under the responsibility of someone having mutual interest (other than the alarm installing company). This does not apply to strip mall applications where each independent business must have their own separate alarm system.
An example for a commercial system would be a business that has an OFFICE area and a WAREHOUSE area in a building where each area can be armed or disarmed independently.
As a residential example a system could be configured with the garage and house as separate areas.
In each of the examples above all of the areas are under the sole responsibility of a single owner.
In multi-area systems the bell (or siren) and control panel must be in one of the protected areas.

The bell or siren must be located where it can be heard by users who turn areas on and off (arm and disarm).

3.3.4 Digital communication

The control panel uses its built-in Ethernet connection, a B426 Conettix Ethernet Communication Module, a Conettix Plug-in cellular module (B440/B441/B442/B443 plugged into the control panel or plugged into a B450 Conettix Plug-in Communicator Interface), or a B430 Plug-in Telephone Communicator to send reports to the central station receiver.
The control panel sends reports in either the Modem4 or ANSI-SIA Contact ID format.
The system can route Event Reports to four different destinations through an IP network or the telephone network (PSTN). Primary and backup reporting paths can be programmed for each destination. A custom option allows you to specify which Event Reports the system sends.

3.3.5 Keypads

The control panels support up to 8 keypads on the SDI2 bus. Use any combination of B Series keypads. The control panel supervises all keypads.

3.3.6 Event memory

The control panel retains point alarm and trouble events for each area in event memory. You can view event memory on a keypad. Turning an area on clears the event memory for that area.

3.3.7 Event log

The event log stores up to 255 local and reported events. The event log includes time, date, event, area, point, and user. View the event log from a keypad or use RPS to remotely retrieve event information. When the event log reaches a programmed threshold of stored events, it can send an optional report to a receiver.

Notice!
B5512 control panels store up to 255 events. B4512 and B3512 control panels store up to 127.

3.3.8 Programming

Use RPS to program the control panels. You can connect to the control panel using a network connection (on-board Ethernet port, cellular module, B426 Conettix Ethernet Communication Module, or telephone module), or locally using the control panel’s on-board Ethernet port or USB port. (To program with the USB port connection, use the B99 USB 2.0 Type A Male to Type A Male cable by Bosch.) You can also use a keypad for select programming.
Refer to *RPS Help* or the control panel's *Program Entry Guide*, and to *Keypad Installer menu, page 103* for programming options.

Notice!
After system installation and any control panel programming, perform a complete system test. A complete system test includes testing the control panel, all devices, and communication paths for proper operation.

3.3.9 Firmware updates

Firmware updates

Remote firmware updates through Remote Programming Software (RPS) using the RPS Firmware Update Wizard. The Firmware Update Wizard uses the on-board USB connection or optional IP connection (on-board Ethernet connection, B426 Conettix Ethernet Communication Module, B440 Conettix Plug-in Cellular Communicator, B441 Conettix Plug-in CDMA Cellular Communicator, B442 Plug-in GPRS Cellular Communicator (Latin America), B443 Plug-in HSPA+ Cellular Communicator (Canada)) to transmit the updates.

– Control panel updates. Remotely update the control panel firmware for easy feature enhancements without replacing ROM chips.
– Module update support. Remotely update the firmware on connected SDI2 modules for easy feature enhancements without visiting each individual module.

4 Installation workflow

Before installing and operating the control panel, read these instructions. Failure to follow these procedures may cause the device not to function properly. Bosch Security Systems Inc. is not responsible for any devices that are improperly installed, tested, or maintained.
This document does not contain special information about local requirements and safety issues. Information on such issues is provided only to the extent that it is needed for operation of the device. Ensure that you are familiar with all safety-related processes and regulations in your area. This also includes how to act in the event of an alarm and the initial steps to take if a fire breaks out. The operating instructions should always be available on site. It is a required part of the system and must be given to the new owner if the system is ever sold.
Use the workflow and checkboxes below as you complete steps. Each step includes references for more detailed information.

☐ **Install the enclosure and wiring label**
– *Install the enclosure and wiring label, page 25*

☐ **Install the control panel**
– *Mount the control panel, page 25*
– *Connect earth ground, page 27*
– *Configure OUTPUT A using the jumper, page 27*

☐ **Install and wire for telephone communication**
– *Telephone communications, page 38*

☐ **Install and wire for IP communications**
– *IP communications, page 42*

☐ **Install and wire the battery and the transformer**
– *Power supply, page 30*

☐ **Begin to charge the battery while you install other devices**
– *Charge the battery, page 32*

☐ **Install and wire arming devices**
– *Keypads, keyswitches, keyfobs and transmitters, page 54*

☐ **Install and wire outputs**
– *On-board outputs, page 60*
– *Off-board outputs, page 62*

☐ **Install and wire inputs**
– *On-board points, page 65*
– *Off-board points, page 67*
– *Wireless modules, page 72*

☐ **Complete the installation**
– *Program and test the control panel, page 75*

See also
– *Keypads, keyswitches, keyfobs and transmitters, page 54*

- *Mount the control panel, page 25*
- *Install the enclosure and wiring label, page 25*
- *Power supply, page 30*
- *Telephone communications, page 38*
- *IP communications, page 42*
- *On-board points, page 65*
- *Off-board points, page 67*
- *Off-board outputs, page 62*
- *Wireless modules, page 72*
- *Program and test the control panel, page 75*
- *On-board outputs, page 60*
- *Configure OUTPUT A using the jumper, page 27*
- *Connect earth ground, page 27*
- *Install the battery, page 32*

5 Control panel installation

5.1 Install the enclosure and wiring label

Refer to *Enclosures, page 96* to determine if the application requires a specific enclosure.
Installing the enclosure:

1. Remove any knockouts prior to installing the control panel.
2. Mount the enclosure in the desired location. Use all enclosure mounting holes. Refer to the mounting instructions supplied with the selected enclosure.
3. Pull the wires into the enclosure.

Notice!
Electromagnetic interference (EMI) can cause problems on long wire runs.

4. Install the supplied *Enclosure Wiring Label* (*B5512/B4512/B3512)* on the inside of the enclosure door.

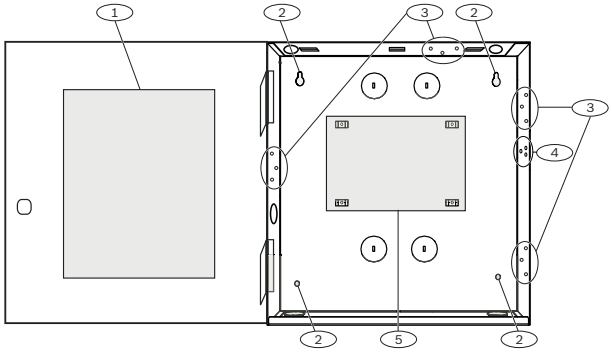


Figure 5.1: Enclosure and control panel mounting (B10 shown)

Callout — Description
1 — Control panel wiring label
2 — Enclosure mounting holes (4)
3 — Module mounting locations (4)
4 — Tamper switch mounting location
5 — Control panel mounting location

5.2 Install the control panel

5.2.1 Mount the control panel

1. Identify the control panel mounting location in the enclosure.

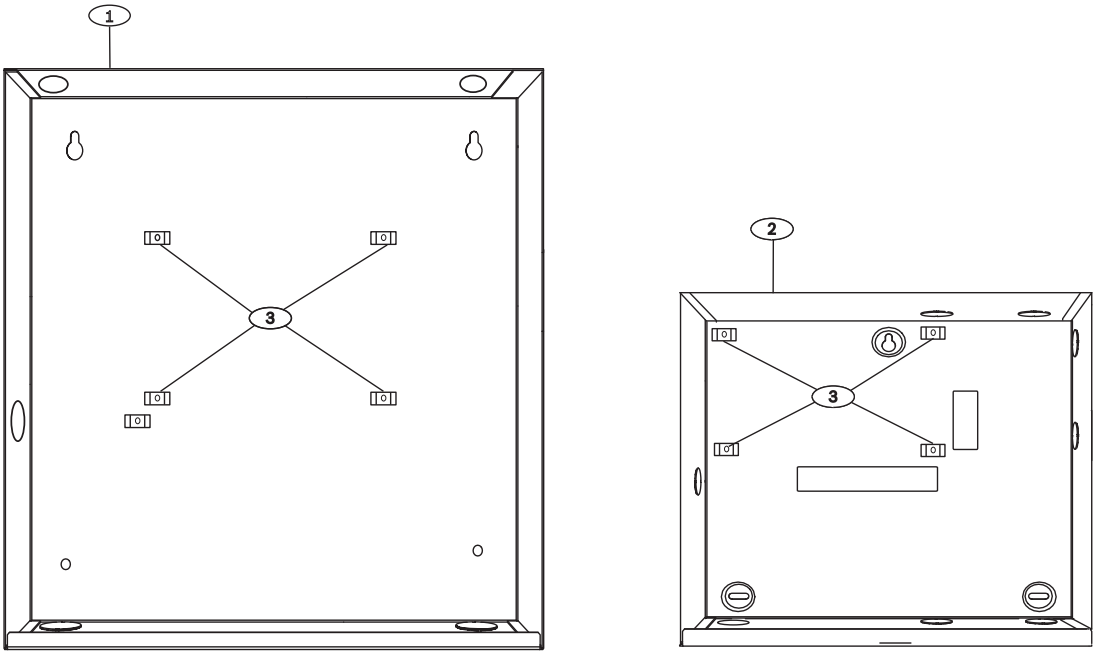


Figure 5.2: B10 and B11 control panel placement locations

Callout — Description
1 — B10 Medium Control Panel Enclosure
2 — B11 Small Control Panel Enclosure
3 — Mounting clip locations for the B5512/B4512/B3512

2. Snap the four supplied plastic standoffs onto four enclosure support posts. If using the B12 Mounting Plate for D8103 Enclosure, attach the standoffs to the plate support posts. Do not attach the standoffs with screws at this time.

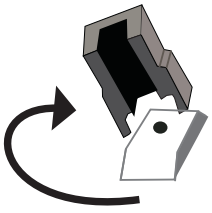


Figure 5.3: Standoff attachment

3. Place the control panel on top of the standoffs. Align the holes in the corners of the control panel with the openings at the top of each standoff. Secure the control panel to the standoffs with supplied, self-threading screws.

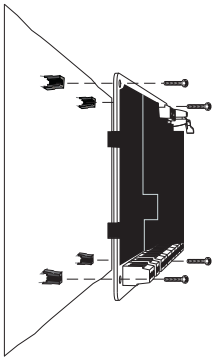


Figure 5.4: Mount control panel on standoffs

4. If using the B12 Mounting Plate for D8103 Enclosure, rest the hook tabs on the mounting plate hooks within the enclosure. Secure the lock-down tab to the plate mounting hole with the screw provided.

5.2.2 Connect earth ground

To help prevent damage from electrostatic discharges or other transient electrical surges, connect the system to earth ground at the earth ground terminal before making other connections. The ⏚ icon (Terminal 10) indicates the earth ground terminal. Use a recommended earth ground reference, such as a grounding rod or a cold water pipe.

Notice!

Do not use telephone or electrical ground for the earth ground connection. Use 14 AWG (1.8 mm) to 16 AWG (1.5 mm) wire when making the connection. Do not connect other control panel terminals to earth ground.

Caution!

Avoid electrostatic discharge. Always touch the earth ground connection with the ⏚ icon first, before beginning work on the control panel.

5.2.3 Configure OUTPUT A using the jumper

When planning your installation, carefully consider the use of OUTPUT A. OUTPUT A is a form C relay. You can configure the common terminal (C) of Output A (OUTPUT A) using the jumper:

- To provide +12 VDC (AUX power)
- To be a COM terminal (parallel to all COM terminals)
- To be a dry contact (no voltage, not common)

The control panel ships with the jumper in the default position, AUX power. (OUTPUT A, ‘C’ terminal using AUX PWR). Remove the door covering the jumper pins, and then move the jumper to the left two pins for switched low (OUTPUT A parallel to COM terminals). Replace the cover door. The OUTPUT A LED lights when OUTPUT A is active. Refer to the figure below or to the *Enclosure Wiring Label (B5512/B4512/B3512)* to set the OUTPUT A jumper.

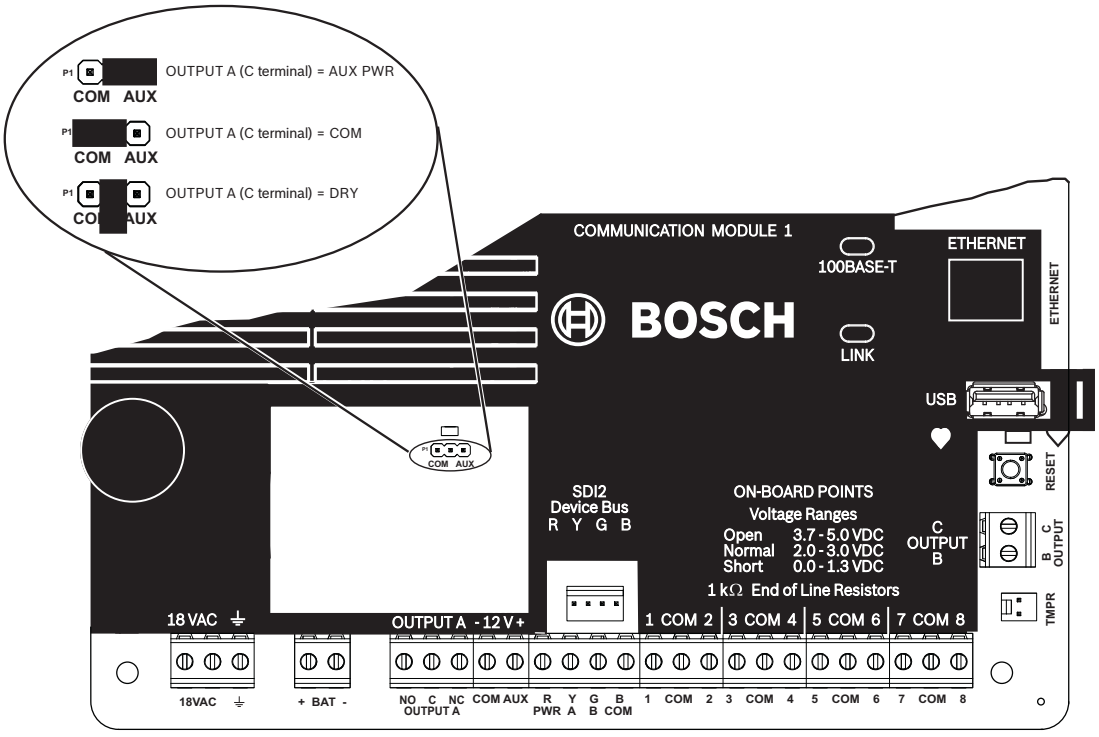


Figure 5.5: OUTPUT A jumper configuration options (B5512 shown)

5.3 Control panel to module wiring overview

In the following sections, this document provides instructions for wiring devices to your control panel. You can use interconnect or terminal wiring.

Using terminal wiring

For terminal wiring, use 18 AWG to 22 AWG (1.02 mm to 0.65 mm) wire.

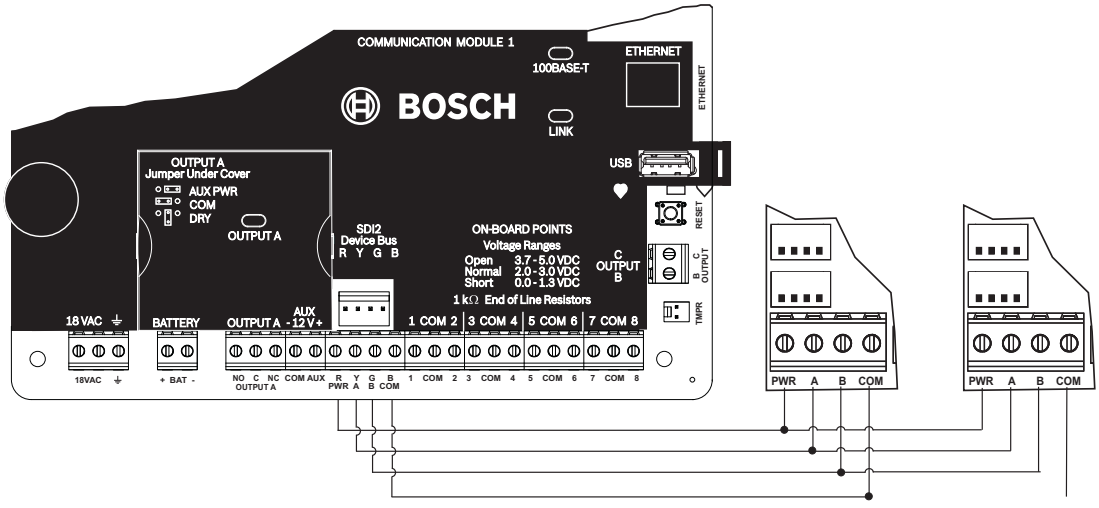


Figure 5.6: SDI2 devices daisy chained with terminal wiring (B5512 shown)

Using interconnect wiring

Interconnect wiring connectors parallel the SDI2 PWR, A, B, and COM terminals on the terminal strip. In installations with multiple SDI2 modules, using interconnect wiring makes the installation quicker and easier than using terminal strip wiring. You use any combination of terminal and interconnect wiring to wire multiple modules in parallel, but do not wire a single module to the control panel using both terminal and interconnect wiring.

The interconnect wiring connectors are "keyed" (interconnect wiring plug can fit in only one direction).

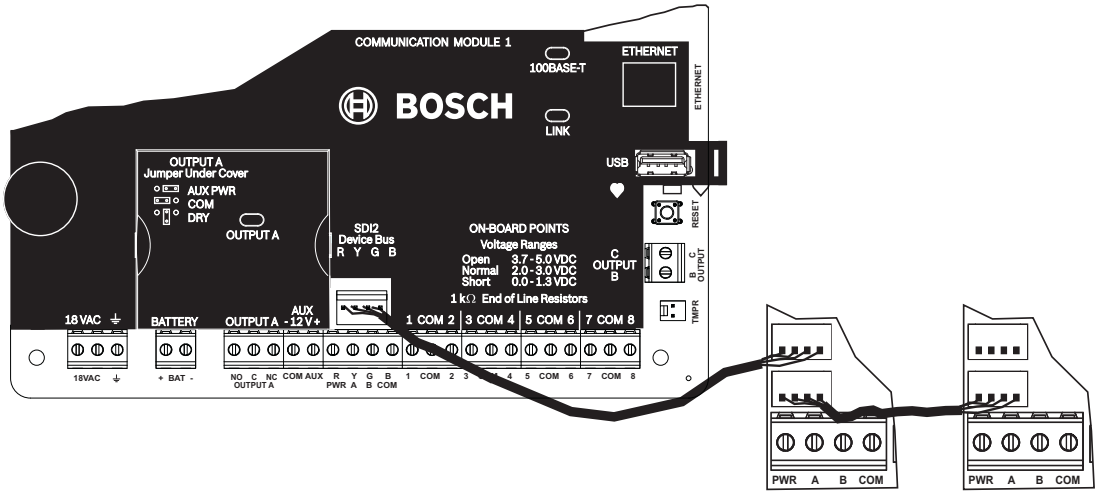


Figure 5.7: SDI2 devices daisy chained with interconnect wiring (B5512 shown)

6 Power supply

6.1 Primary power terminals

18VAC

The control panel uses an 18 VAC, 22 VA internally fused transformer (CX4010) for its primary power source. The control panel draws 125 mA when idle and 155 mA when in an alarm state. The auxiliary power available for continuously powered devices is 800 mA.
Transient suppressors and spark gaps protect the circuit from power surges. This protection relies on the ground connection at the earth ground terminal, marked with the ⏚ icon. Ensure that you connect the terminal to a proper ground.
Refer to *Connect earth ground, page 27*.

AC power fail
The system indicates an AC power failure when the 18 VAC terminals do not have power. The AC Fail Time parameter sets the number of minutes or seconds without AC power before the control panel reports the failure, and the number of minutes or seconds after the power returns before the control panel reports restored power.

Self diagnostics at power up and reset
The system performs a series of self-diagnostic tests of hardware, software, and programming at power up and at reset. The self-diagnostics tests complete in approximately 10 to 30 sec. If the control panel fails any test, a System Trouble message appears at the keypads.

6.1.1 Install the transformer

Caution!
Do not short-circuit the terminals of the transformer: Shorting the terminals opens the internal fuse, causing permanent failure. Connect the transformer to the 18 VAC terminals of the control panel before plugging it into the power source.

Notice!
Plan ahead
Route telephone, SDI2 bus wiring, and sensor loop wiring away from any AC conductors, including the transformer wire. AC wiring can induce noise and low level voltage into adjacent wiring.

1. Use 18 AWG (1.02 mm) wire minimum (12 AWG [2 mm] maximum) and connect the transformer to the control panel. Make the wire length as short as possible. Do not exceed 50 ft (15 m).
2. Connect the wire to the control panel.
3. Connect the wire to the transformer.
4. Plug the transformer into an unswitched, 120 VAC, 60 Hz power outlet only.
5. Secure the transformer to the outlet with the screw provided.

6.2 Secondary (DC) power terminals

+ BAT -

A 12 V sealed lead-acid rechargeable battery (D126/D1218) supplies secondary power for auxiliary and alarm outputs, and powers the system during interruptions in primary (AC) power.

Notice!

Use lead acid batteries only

The charging circuit is calibrated for lead-acid batteries. Do not use gel-cell or nicad batteries.

Extra batteries increase back-up time

To increase battery back-up time, connect a second 12 V battery in parallel to the first battery. Use a D122/D122L Dual Battery Harness to ensure proper and safe connection.

Refer to *Standby battery calculations, page 98*.

D1218 Battery

The D1218 is a 12 V, 18 Ah battery for use in applications requiring extended battery standby time. The control panel does not support more than 18 Ah.

6.2.1 Install the battery

1. Place the battery upright in the base of the enclosure.
2. Locate the red and black leads supplied in the literature pack.
3. Connect the black battery lead to the BAT- terminal, and then to the negative (-) side of the battery.
4. Connect the red battery lead to the BAT+ terminal, and then to the positive (+) side of the battery.

Warning!

High current arcs are possible. The positive (red) battery lead and the BAT+ terminal can create high current arcs if shorted to other terminals or the enclosure. Use caution when working with the positive lead and BAT+. Always disconnect the positive (red) lead from the battery before removing it from BAT+.

Caution!

The battery terminals and wire are not power limited. A 0.250 in (6.4 mm) space must be maintained between the battery terminals, battery wiring, and all other wiring. Battery wiring cannot share the same conduit, conduit fittings, or conduit knockouts with other wiring.

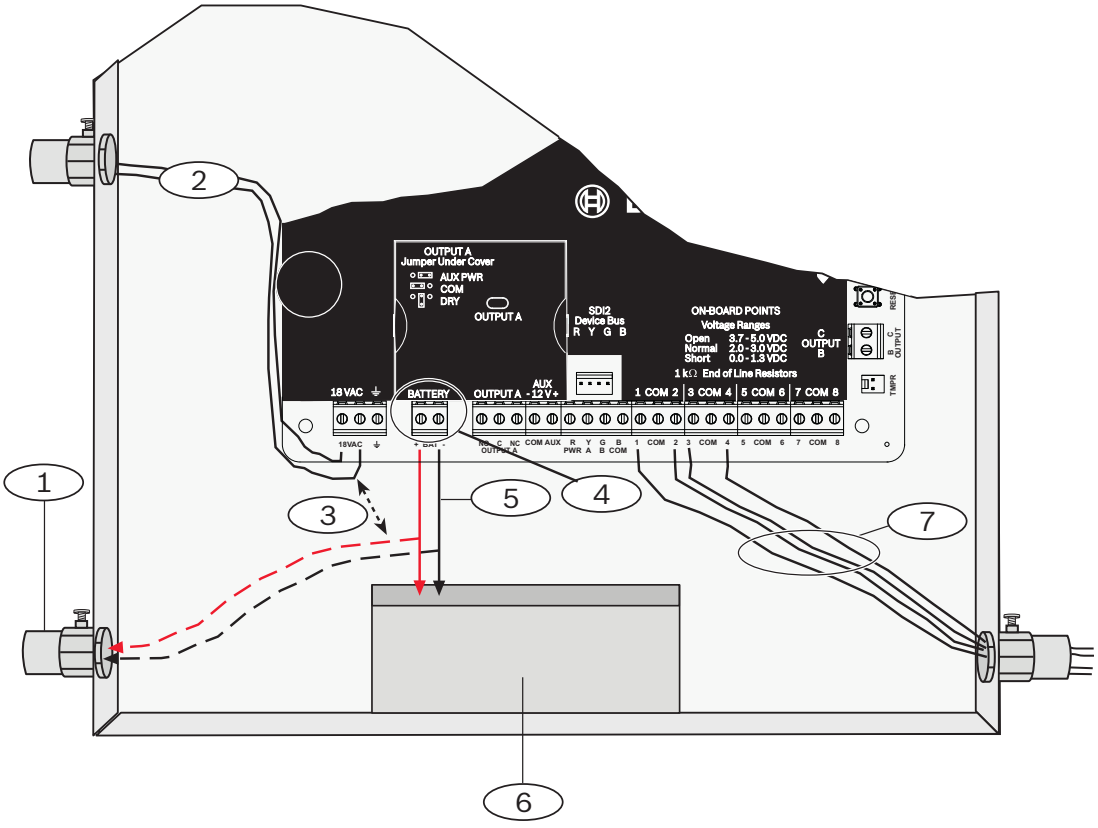


Figure 6.1: Non-power-limited wiring (B5512 shown)

Callout — Description
1 — Conduit required for use with external batteries
2 — To CX4010 UL Listed Class 2 Transformer 18 VAC 22 VA 60 Hz
3 — 0.25 in (6.4 mm) minimum
4 — Battery terminals. BAT- is non-power limited
5 — Battery wires
6 — 12 V sealed lead-acid rechargeable battery (D126/D1218)
7 — Sensor loop wires

Charge the battery

Connect the battery and then the transformer to allow the control panel to charge the battery while you complete the installation.

6.2.2 Battery maintenance

Use sealed lead-acid rechargeable battery (12.0 VDC, 7 Ah or 12.0 VDC, 18 Ah). The control panel supports up to 18 Ah of battery. If you use two D126 (12.0 VDC, 7 Ah) batteries, then connect them using the D122/D122L Dual Battery Harness. If you install two batteries, they must have the same capacity.

Replace the batteries every 3 to 5 years. If you install two batteries, replace them both at the same time.

Record the date of installation directly on the battery.

Caution!
Exceeding the maximum output ratings or installing the transformer in an outlet that is routinely switched off causes heavy discharges. Routine heavy discharges can lead to premature battery failure.

6.2.3 Battery supervision

The battery charging float level occurs at 13.65 VDC. If the battery voltage drops below 12.1 VDC, the control panel sends a LOW BATTERY report, if programmed to do so.
When the battery voltage drops to 10.2 VDC, the keypad or keypads show low battery messages. The control panel (if programmed for power supervision) sends a Battery Low report in the Modem4 communication format. It sends a Low System Battery (302) report in the Contact ID format.
If programmed for power supervision, the control panel adds a missing battery event to the event log. If programmed for battery fault reports, the control panel sends a BATTERY MISSING report in the Modem4 communication format, or Control Panel Battery Missing (311) report in the Contact ID format.
When battery voltage returns to 13.4 V, the keypads stop showing the low battery messages. If the control panel is programmed for power supervision, it sends a BATTERY RESTORAL report in the Modem4 communication format or a Control Panel Battery Restored to Normal (302) report in the Contact ID format.
Investigate LOW BATTERY events immediately: If primary (AC) power is off and the discharge continues, the control panel becomes inoperative when the battery voltage drops below 10.2 VDC.

6.2.4 Battery discharge and recharge schedule

Discharge cycle
13.65 VDC - Charging float level.
12.1 VDC - Low Battery Report, if programmed.
10.2 VDC - Minimum operational voltage.

Recharge cycle
AC ON - Battery charging begins and AC Restoral Reports sent.
13.4 V - Battery Restoral Report sent. Battery float charged.

Further information
Refer to *Powered outputs, page 60*.

6.3 B520 Auxiliary Power Supply

The optional B520 Auxiliary Power Supply Module provides up to 2 A of 12 VDC standby power for Fire and Burglar applications. For Burglar applications, an additional 2 A of alarm power is available, allowing 2 A of standby current and up to 4 A of alarm current. You can connect more than one module to the control panel.
The B5512 control panels support up to 4 modules. The B4512/B3512 control panels support up to 2 modules.
Connect B520 Auxiliary Power Supply Modules to the SDI2 bus on the control panel using terminals PWR, A, B, and COM. This section includes basic installation instructions. For detailed installation instructions, refer to the *Auxiliary Power Supply Module (B520) Installation Guide* for complete installation instructions, and for battery standby time calculations, refer to the *B520 Auxiliary Power Supply Module Battery Standby Chart* within the installation guide.

6.3.1 SDI2 address settings

Notice!
The module reads the address switch setting only during power up. If you change the setting after you apply power to the module, you must cycle the power to the module in order for the new setting to be enabled.

If multiple B520 modules reside on the same system, each B520 module must have a unique address.

6.3.2 Supervision

The control panel supervises B520 Auxiliary Power Supply Modules on the SDI2 bus.
With any failure to receive an expected response from an SDI2 module, all keypads show in a system fault display. The control panel sends a module trouble report to the central station (if configured for module trouble reports).

6.3.3 Auxiliary power supply trouble conditions

Each auxiliary power supply module on the SDI2 bus monitors several conditions including AC status, battery status, over current status, and a tamper input. Each of these conditions produces a unique system trouble condition at all keypads. The control panel sends a module trouble report to the central station (if configured for module trouble reports).
When the control panel shows a generic trouble condition for a SDI2 bus power supply module, it could mean one of several non-serviceable things has occurred; low power output, module firmware flash error, or battery charger circuit failure.

6.3.4 Installation and control panel wiring (B520)

The power supply draws approximately 15 mA (+/- 1 mA) from the control panel.
Ensure that there is enough power for the module and other powered devices you want connected to the system.
Refer to *On-board outputs, page 60*.

Caution!
Remove all power (AC and battery) before making any connections. Failure to do so might result in personal injury and/or equipment damage.

Install the module

1. Install the enclosure on the wall using the instructions supplied with the enclosure.
2. Set the module address using the address switches before you install it in the enclosure.
3. Insert the plastic mounting clips onto the appropriate standoff locations inside the enclosure or on a mounting skirt, when required.
4. Mount the module onto the plastic mounting clips and then secure it using the supplied mounting screws.

Wire to earth ground

To help prevent damage from electrostatic charges or other transient electrical surges, connect the system to earth ground before making other connections. Recommended earth ground references are a grounding rod or a cold water pipe. When grounding, run wire as close as possible to grounding device.

Caution!
Do not use telephone or electrical ground for the earth ground connection. Use 14 AWG (1.8 mm) to 16 AWG (1.5 mm) wire when making the connection.

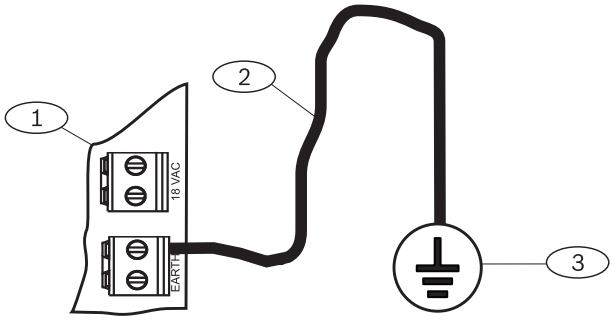


Figure 6.2: B520 earth ground wiring

Callout — Description
1 — Power supply module
2 — 14 AWG - 16 AWG (1.8 mm - 1.5 mm) wire
3 — Ground device (grounding rod or cold water pipe)

Wire to the control panel

When wiring a module to a control panel, use the terminal strip labeled with PWR, A, B, and COM for SDI2 IN to wire to terminals labeled PWR, A, B, and COM on the control panel. Use 12 AWG to 22 AWG (2 mm to 0.65 mm) wire.

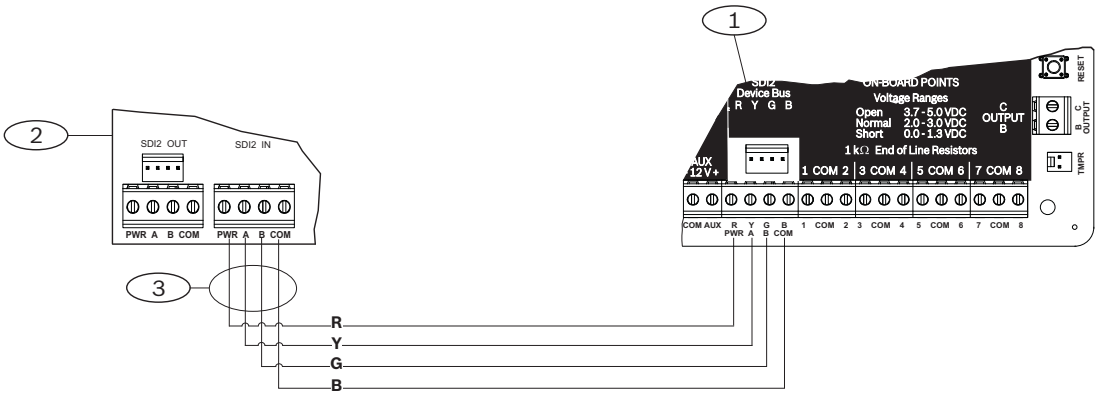


Figure 6.3: B520 to the control panel wiring (B5512 shown)

Callout — Description
1 — Control panel
2 — Power supply module
3 — Terminal strip wiring

6.3.5 Powered device and battery wiring

Wire to SDI2 powered devices

When wiring the output of a B520 to a SDI2 module, you can use either the SDI2 OUT terminal strip labeled with PWR, A, B, and COM to wire to terminals labeled PWR, A, B, and COM on the next module, or you can use the interconnect wiring connector (included). Wiring the output of a B520 to a SDI2 device provides power to the device while passing through data between the control panel and the device.

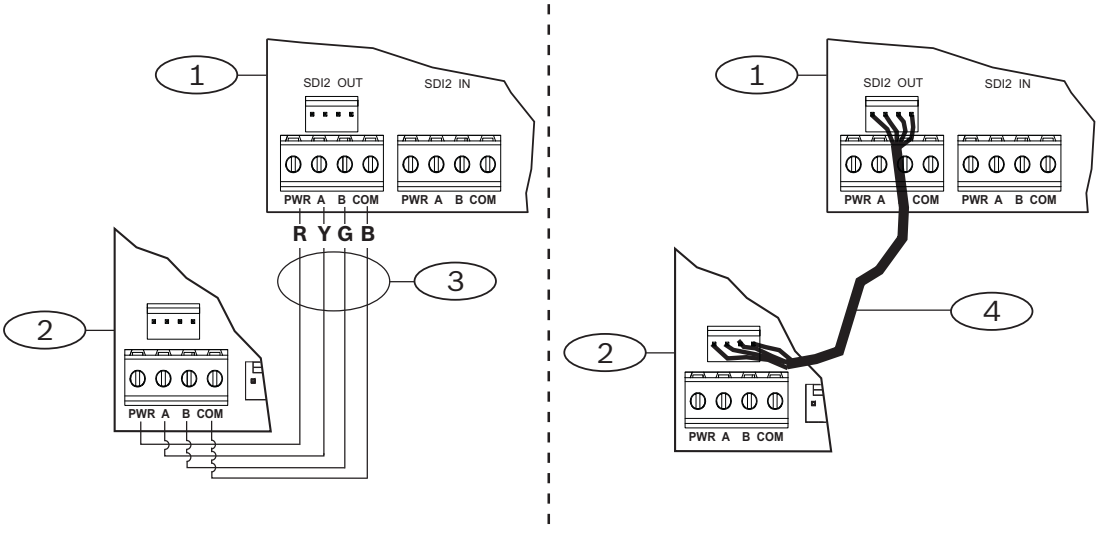


Figure 6.4: B520 to powered devices - terminal strip or interconnect wiring connector

Callout — Description
1 — B520 Auxiliary Power Supply Module
2 — Powered device (SDI2 module)
3 — Terminal strip wiring
4 — Interconnect wiring (P/N: F01U079745)

Wire to batteries

Wiring the B520 to BATT 1 is required for proper operation of standby power for the B520 module. Wiring the second battery (BATT 2) is optional. If a control panel is configured for two batteries as the standby power source, then BATT 2 is also required for proper operation. BATT 2 must have the same capacity and rating as BATT 1. Maximum standby power cannot exceed 36 Ah.

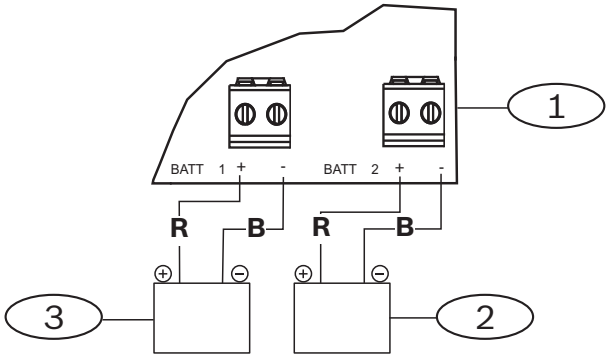


Figure 6.5: B520 BATT terminals wiring

Callout — Description
1 — Module
2 — Battery 2 (BATT 2) - (12 V nominal lead acid)
3 — Battery 1 (BATT 1) - (12 V nominal lead acid))

7 Telephone communications

7.1 B430 Plug-in Telephone Communicator

The B430 Plug-in Telephone Communicator provides communication over PSTN. The module provides a single telephone interface RJ-45 connector for connecting the phone line. The module plugs directly into the control panel with no additional connections required.
The control panel supports one plug-in module plugged directly into the control panel board.
This section includes basic installation instructions. For detailed installation instructions, refer to the *Plug-in Telephone Communicator (B430) Installation Guide*.

Notification
The B430 module by Bosch Security Systems, Inc. is registered with the Federal Communication Commission (FCC) under Part 68, for connection to the public telephone system using an RJ31X or RJ38X phone line connection jack installed by the local telephone company.
Do not connect registered equipment to party lines or coin-operated telephones. Notify the local telephone company and provide the following information before connecting the control panel to the telephone network:

- The particular line to which you connect the module
- Make (Bosch Security Systems, Inc.), model (B5512/B4512/B3512), and serial number of the control panel
- FCC registration number: ESVAL00BB430
- Ringer eq: 0.0B

7.1.1 Supervision

The control panel supervises the phone line. You can configure the supervision time using RPS.

7.1.2 Installation and module wiring (B430)

Ensure that there is enough power for the module and other powered devices you want connected to the system.
Refer to *On-board outputs, page 60*.

Caution!
Remove all power (AC and battery) before making any connections. Failure to do so might result in personal injury and/or equipment damage.

Install the module
The module plugs into a connector and is held in place with a plug-in module retention clip. The module handle and support on top of the module hold the unit during installation.
Plug the module in to a control panel by aligning the module with the control panel's on-board connector. The retention clip has a locking device to help hold the card in position. Pull the locking device back. Slide the module down until it seats firmly into the connector slot. The locking handle will then click into pace holding the module in the socket.

Wire to the phone line
The module has pads on both sides of the board to connect a test telephone set. Connect one end of a D162 or D161 Modular Telephone Cord to the phone line, and connect the other end to a RJ31X or RJ38X phone jack to make proper connection to the phone line.

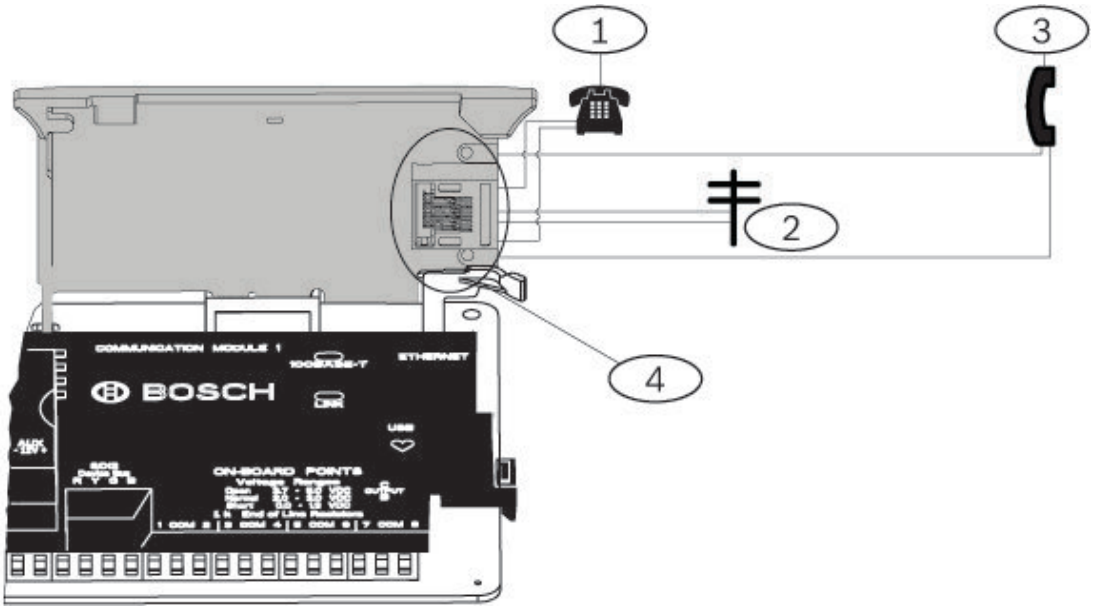


Figure 7.1: PTSN module wiring (B5512 shown)

Callout — Description
1 — Premises telephone
2 — Incoming Telco line
3 — Installer telephone test set
4 — RJ-45 phone connector

7.1.3 Diagnostic LEDs

The module uses a green LED to indicate when the module is on or off hook or the line is ringing (incoming phone call).

Flash pattern	Function
OFF	Standby
ON	Line seized
Flash	Ringing detect (incoming phone call)

Table 7.1: PTSN diagnostic LED patterns

7.2 Phone jack location

To prevent jamming of signals, wire the RJ31X or RJ38X jack before the in-house telephone system to support line seizure. Install the jack on the street side of the telephone switch, wired ahead of any PBX equipment. Line seizure temporarily interrupts normal telephone usage while the control panel sends data. After installation, confirm that the control panel seizes the line, acquires dial tone, reports correctly to the receiver, and releases the telephone line to the in-house telephone system.

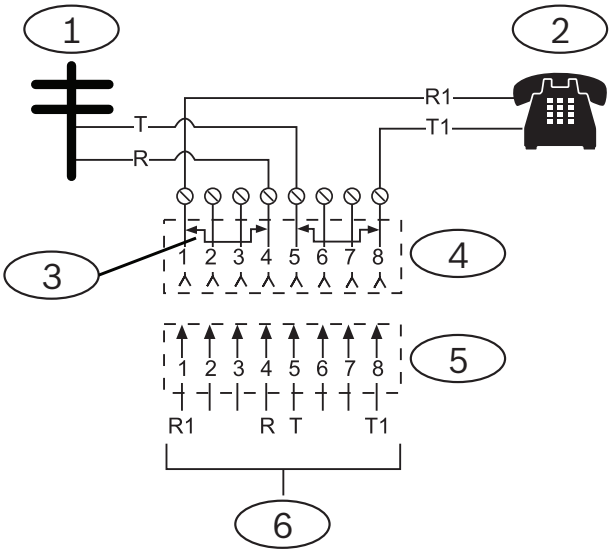


Figure 7.2: RJ31X/RJ38X wiring (RJ31X shown)

Callout — Description
1 — Outside Telco
2 — Premises telephone
3 — Bar short removed on Telco connector block insertion – positions 1 and 4 and 5 and 8
4 — RJ31X/RJ38X jack
5 — Telco connector block
6 — To control panel

7.3 Telephone line monitor

The B430 module has a built-in telephone line monitor that tests the telephone line for voltage and current. The normal voltage on a telephone line is approximately 48 VDC (24 VDC for some telephone systems).

If the module senses trouble, it starts a programmable telephone line trouble timer, which continues to run as long as the monitor detects trouble. It resets to zero when the control panel senses a normal line. If the timer reaches the delay time in the Phone Supervision program item, it begins a telephone line trouble response. Programming determines what the response is. For programming information, refer to *Phone Parameters* in *RPS Help* or in the control panel's *Program Entry Guide*.

Notice!

Bad Line Might Test OK

The telephone line monitor uses voltage levels to test the status of the telephone line. In some instances, a given telephone line might be out of service without affecting the voltage on the line. The telephone line monitor cannot recognize this trouble condition.

7.4 Called party disconnect

Telephone companies provide “called party disconnect” to allow the called party to terminate a call. The called party must go on hook (hang up) for a fixed interval before a dial tone is available for a new call. This interval varies with telephone company equipment. Control panel firmware allows for “called party disconnect” by adding a 35-sec “on hook” interval to the dial tone detect function. If the control panel does not detect a dial tone in 7 sec, it puts the telephone line on hook for 35 sec to activate “called party disconnect,” goes off hook, and begins a seven-sec dial tone detect. If no dial tone is detected, the control panel dials the number anyway. Each time the control panel dials the number, the control panel records this as an attempt.

7.5 Communication failure

If the control panel has a backup route configured and the first two attempts to reach the receiver over the phone line fail, the system switches to the backup route. When it switches to the backup route, it sends a trouble event, and the event that triggered the telephone call to the central station follows.

After ten unsuccessful attempts to reach the receiver, the control panel enters communication failure. The control panel clears any reports queued for the failed route and generates a COMM FAIL event that shows on the keypads. A trouble sounder can be programmed to annunciate at the keypads.

One hour after a COMM FAIL event, the control panel attempts to send a COMM RSTL event. If a communication failure still occurs, the keypad trouble sounds again.

8 IP communications

The control panel uses the optional on-board Ethernet connector, B440 Conettix Plug-in Cellular Communicator, B441 Conettix Plug-in CDMA Cellular Communicator, B442 Plug-in GPRS Cellular Communicator (Latin America), B443 Plug-in HSPA+ Cellular Communicator (Canada), or B426 Conettix Ethernet Communication Module to communicate with a Conettix D6600 or a Conettix D6100IPv6 Communications Receiver/Gateway. Using Conettix IP communication offers a secure path that includes anti-replay/anti-substitution features and provides enhanced security with AES 256-bit encryption. You can use the Ethernet connection for remote programming.

The control panel supports Domain Name System (DNS) for both remote programming and central station communication. DNS provides ease of use, eliminating the need to use static IP addresses as your reporting destination, and accommodates a simple solution for central station disaster recovery. IP Setup is available via the keypad Installer menu and the remote programming software, eliminating the need to use complicated internet programming tools such as ARP and Telnet. The control panel supports both IPv6 and IPv4 networks.

For more information on the enhanced communications capabilities, refer to *RPS Help* or the control panel's *Program Entry Guide*.

Notice!

For premises equipment used in the communication path, such as routers, use only UL listed equipment.

8.1 On-board Ethernet connection

The built-in Ethernet port on the control panels allows for a network connection without the need for additional modules. The port supports both 10 Base-T (10 Mb) and 100 Base-TX (100 Mb) standards. The port supports full duplex, half duplex, and HP AUTO_MDIX communication, using a standard Ethernet cable.

8.1.1 Supervision

The control panel supervises its on-board Ethernet connection when the control panel uses the on-board Ethernet in any of the four route groups as part of either the primary route or the backup route, or when the control panel uses the connection as the automation mode 1 device. Supervision ensures reliable operation of the Ethernet port.

If supervised and the on-board Ethernet does not respond to control panel supervision polls, then a system fault message appears at the keypads. The control panel sends a corresponding report to the central station.

8.1.2 Local RPS programming

Use the on-board Ethernet connection to locally connect with RPS. This connection method requires a direct IP connection from the RPS computer to the on-board Ethernet port. You must remove the Ethernet cable that connects the control panel to the network used for IP communication for the duration of the RPS session (when applicable). Be sure to reconnect the cable used for IP communication when you finish your RPS session.

8.1.3 On-board Ethernet diagnostic LEDs

The control panel includes the following on-board LEDs to assist with troubleshooting the on-board Ethernet connection.

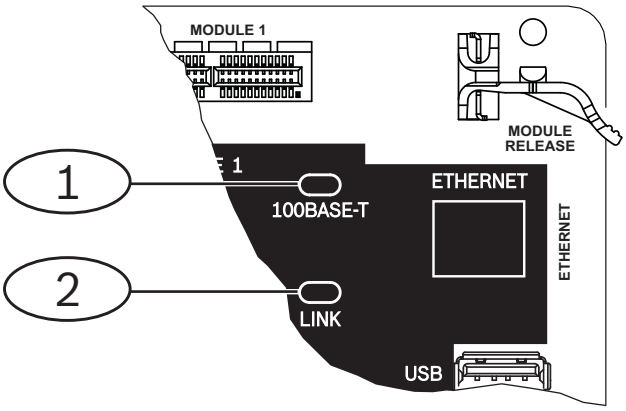


Figure 8.1: On-board Ethernet connector and LEDs (B5512 shown)

Callout — Description	Callout — Description
1 — 100BASE-T LED (green)	2 — LINK LED (yellow)

Refer to the following tables for information on the 100BASE-T and LINK LEDs.

Flash pattern	Function
On Steady	Communicating at 100 Mb
Off	Communicating at 10 Mb.

Table 8.1: 100BASE-T LED descriptions

Flash pattern	Function
On Steady	Plugged into an Ethernet network.
Flashing	Communication in progress.
Off	Unplugged from an Ethernet network, or the Ethernet network is not available.

Table 8.2: LINK LED descriptions

8.2 Conettix Plug-in Cellular Communicators

Cellular plug-in communicators provide communication between the control panel and central monitoring stations or RPS using a cellular network. The module also sends and receives SMS messages for personal notification or system configuration.
The control panel supports one plug-in module.

Connect a module using the plug-in module connector or using a B450 Conettix Plug-in Communicator Interface (refer to the *Conettix Plug-in Communicator Interface (B450) Installation and Operation Guide* and *B450 Conettix Plug-in Communicator Interface, page 50*). This section includes basic installation instructions. For detailed instructions, refer to the corresponding Conettix plug-in module document listed in *Optional module documents, page 12*.

8.2.1 Supervision

The control panel supervises a plug-in cellular communicator when the control panel uses the module in any of the four route groups as part of either the primary route or the backup route, and the control panel uses the module to route any personal notifications. Supervision ensures reliable operation between the module and the control panel.
If supervised and the module does not respond to control panel supervision polls, then a system fault message shows on the keypads. The control panel sends a corresponding report to the central station.

8.2.2 Installation and module wiring (B44x)

Ensure that there is enough power for the module and other powered devices you want connected to the system.
Refer to *On-board outputs, page 60*.

Caution!
Remove all power (AC and battery) before making any connections. Failure to do so might result in personal injury and/or equipment damage.

Install the module
The module plugs into a connector and is held in place with a plug-in module retention clip. The module handle and support on top of the module hold the unit during installation.
Plug the module in to a control panel by aligning the module with the control panel's on-board connector. The retention clip has a locking device to help hold the card in position. Pull the locking device back. Slide the module down until it seats firmly into the connector slot. The locking handle will then click into pace holding the module in the socket.

Wire to the antenna
The module has a threaded connector for connection to an antenna. Route the antenna cable through a wire knockout in the top of the enclosure. Connect the antenna cable to the module. Secure the antenna cable to the outside of the enclosure.

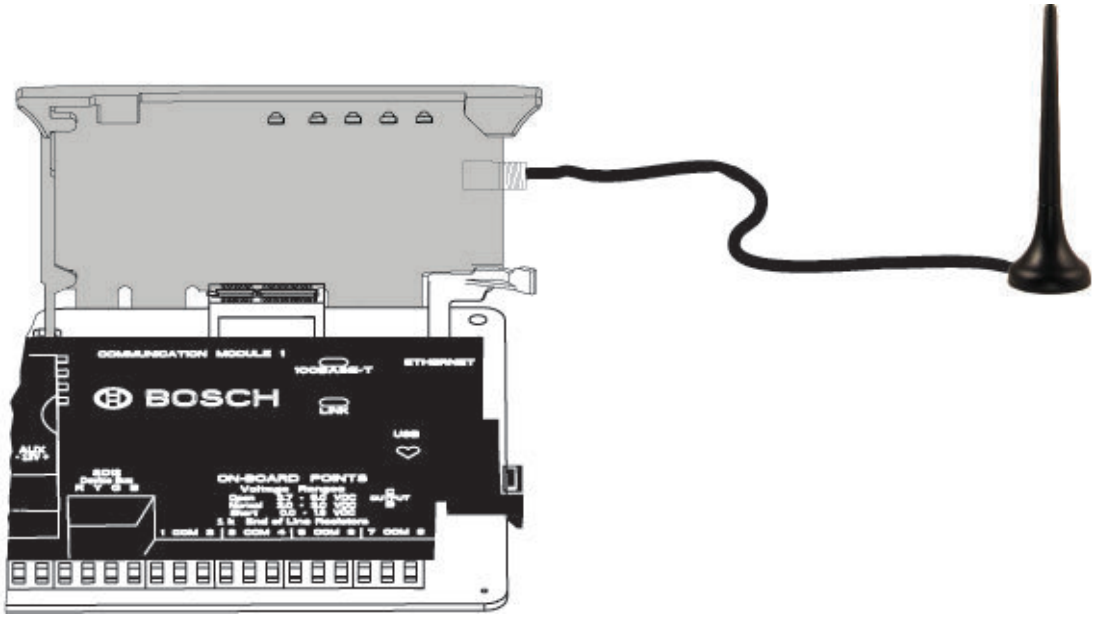


Figure 8.2: Plug-in celluar module wiring (B440 and B5512 shown)

8.2.3 Signal strength and diagnostic LEDs

Five LED patterns indicate that you correctly secured the module in the control panel, and indicate the signal strength obtained by the module.

LED	Function
Blue	Indicates the overall status of the device.
Red	Indicates an unacceptable signal strength level.
Yellow	Indicates a marginal signal strength level.
Green (1 light)*	Indicates a good signal strength level.
Green (2 lights)	Indicates a very good signal strength level.
* One green LED indicates the minimum installation level.	

Table 8.3: Cellular module signal strength LED patterns

A single blue Status LED indicates the module status.

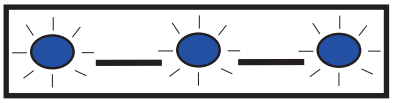
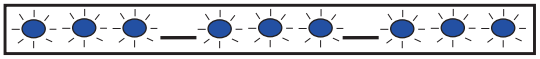
Flash pattern	Function
 Flashes once every 1 sec	Normal state. Indicates normal operation.
 3 quick flashes	Communication error state. Indicates the module is unable to communicate on the cellular network.
Off	LED trouble state. Module is not powered, or some other trouble condition prohibits the module from controlling the heartbeat LED.

Table 8.4: Cellular module diagnostic LED patterns

8.3 B426 Ethernet Communication Module

The B426 Conettix Ethernet Communication Module is a four-wire powered SDI2 device that provides connection for two-way communication over Ethernet networks to the control panels. The control panel supports one module.

The B426 Conettix Ethernet Communication Module connects to the SDI2 bus on the control panel using terminals PWR, A, B, and COM, or using the SDI2 interconnect wiring connector.

This section includes basic installation instructions. For detailed installation instructions, refer to the *Conettix Ethernet Communication Module (B426) Installation and Operation Guide* (P/N: F01U281208).

8.3.1 Address and emulation settings

Notice!

The module reads the address switch setting only during power up. If you change the setting after you apply power to the module, you must cycle the power to the module in order for the new setting to be enabled.

Set the address switch to 1 to use the module with a B5512/B4512/B3512 control panel.

8.3.2 Supervision

The control panel supervises in two ways:

- Module supervision. The control panel supervises the module through polling. If the module does not respond to the control panel polling, the control panel declares the device missing.
- Communication supervision. The control panel supervises the communication path by polling the central station receiver. If the poll is missed from either side, a communication fault is declared both at the control panel and the central station receiver.

8.3.3 B426 module faults

With a B426 installed, several services become available to the control panel. Any break in the Ethernet connection to a supervised B426 results in a system fault at the keypads indicating Open Cable trouble.

If a Domain Name Server (DNS) is available on the network, a failure to resolve an individual Network Address hostname results in a system fault at the keypads indicating DNS ERROR ##. The error number represents the communication module and path destination combination

that failed. Refer to *RPS Help* or the control panel's *Program Entry Guide* for details on communication module/path destination combinations. The keypad shows a failure to resolve the domain name used for RPS Network Address.
If a B426 fails all communication with the DNS, a system fault indicating Network Module # Address Error shows on all keypads and the control panel sends a trouble event to the central stations, if enabled.

8.3.4 Local RPS programming

Use the B426 IP Direct connect feature to locally connect with RPS. This connection method requires a direct IP connection from the RPS computer to the B426 Ethernet port. You must remove the Ethernet cable that connects the B426 to the web for the duration of the IP direct connection. Be sure to reconnect the B426 to the internet when you finish.
The IP Direct connection for RPS uses the B426 AutoIP configuration. Refer to the *Conettix Ethernet Communication Module (B426) Installation and Operation Guide* for configuration information. This connection method also allows diagnostic and history retrieval.

8.3.5 Installation and control panel wiring (B426)

Ensure that there is enough power for the module and other powered devices you want connected to the system.
Refer to *On-board outputs, page 60*.

Caution!
Remove all power (AC and battery) before making any connections. Failure to do so might result in personal injury and/or equipment damage.

Install the module

1. Set the module address to one using the address switch before you install it in the enclosure.
2. Install the module in the enclosure with the control panel or in an adjacent enclosure that is no more than 1000 ft (305 m) using 18 AWG to 22 AWG (1.02 mm to 0.65 mm) wire from the control panel.
3. Use the screws provided with the module to secure the module in the enclosure.

Wire to the control panel

When you wire an SDI2 module to a control panel, you can use either the terminal strip labeled with PWR, A, B, and COM to wire to terminals labeled PWR, A, B, and COM on the control panel, or you can use the P6 interconnect wiring connector and the included interconnect cable.
For terminal wiring, use 18 AWG to 22 AWG (1.02 mm to 0.65 mm) wire.

Notice!
Use either the terminal strip wiring or interconnect wiring to the control panel. Do not use both. When connecting multiple modules, you can combine terminal strip and interconnect wiring connectors in series.

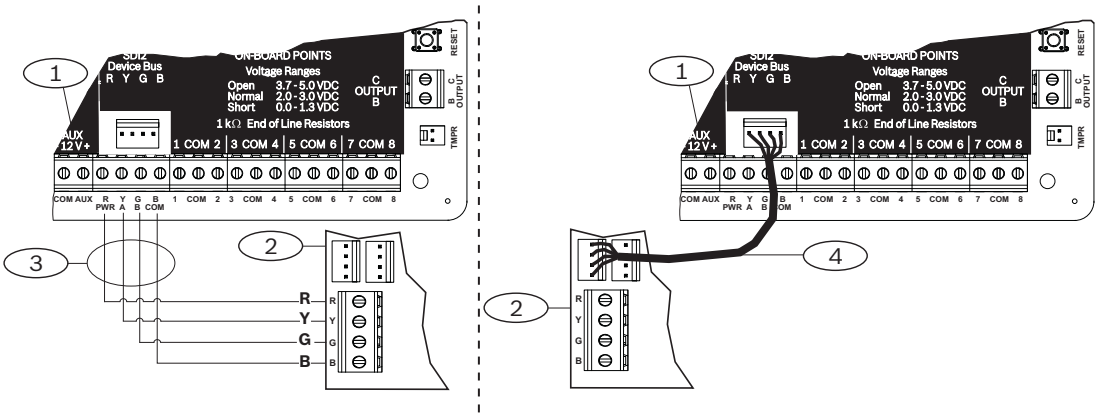


Figure 8.3: B426 to control panel wiring - terminal strip or interconnect wiring connector (B5512 shown)

Callout — Description
1 — Control panel
2 — Module
3 — Terminal strip wiring
4 — Interconnect cable (P/N: F01U079745) (included)

Wire to the network

The module has an Ethernet RJ-45 port for connection to an Ethernet network. Connect an Ethernet cable between the Ethernet jack on the module and a network jack.

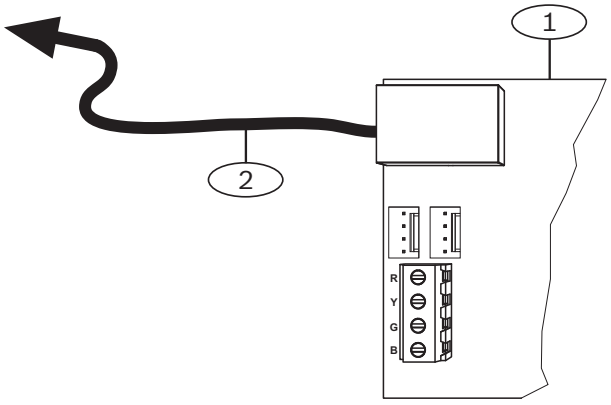


Figure 8.4: B426 to Ethernet wiring

Callout – Description
1 – B426 module
2 – Ethernet cable

8.3.6 Diagnostic LEDs

The B426 includes the following on-board LEDs to assist with troubleshooting:

- Heartbeat (system status).
- RX (receive).
- TX (transmit).

Refer to B426 module overview for Ethernet link LED locations.

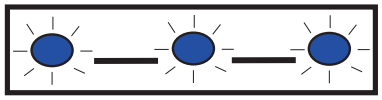
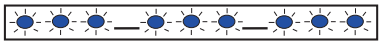
Flash pattern	Function
 Flashes once every 1 sec	Normal state. Indicates normal operation state.
 3 quick flashes every 1 sec	Communication error state. Indicates a bus communication error. The module is not receiving commands from the control panel.
On Steady	Trouble state. Indicates a trouble condition exists.
Off	LED trouble state. Module is not powered, or some other trouble condition prohibits the module from controlling the heartbeat LED.

Table 8.5: Heartbeat LED descriptions

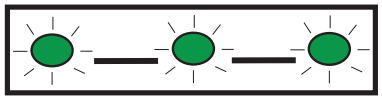
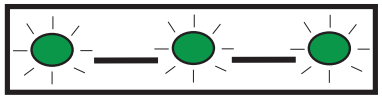
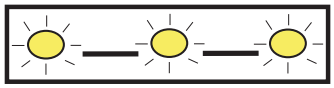
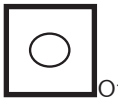
Flash pattern	Function
 RX (Receive) Flashing	Occurs when the module receives a message over the network connection – UPD, TCP, or DNS.
 TX (Transmit) Flashing	Occurs when the module sends a message over the network connection – UPD, TCP, or DNS.

Table 8.6: RX and TX LEDs descriptions

LINK (yellow) LED pattern	100Mb (green) LED pattern	Function
Off	Off	No Ethernet link
On Steady	Off	10Base-T link
 Flashing	 Off	10Base-T activity

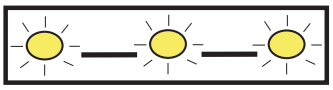
LINK (yellow) LED pattern	100Mb (green) LED pattern	Function
On Steady	On Steady	100Base-TX link
 Flashing	On Steady	100Base-TX activity

Table 8.7: Ethernet Link LEDs descriptions

8.4 B450 Conettix Plug-in Communicator Interface

The B450 Conettix Plug-in Communicator Interface gives the ability to connect more than one cellular plug-in communicator to the control panel by providing an interface to the control panel's SDI2 wiring.
The B450 supports one cellular plug-in module.
B450 Conettix Plug-in Communicator Interface connects to the SDI2 bus on the control panel using terminals PWR, A, B, and COM, or using the SDI2 interconnect wiring connector. This section includes basic installation instructions. For detailed installation instructions, refer to the *Conettix Plug-in Communicator Interface (B450) Installation and Operation Guide*.

8.4.1 SDI2 address settings

Notice!
The module reads the address switch setting only during power up. If you change the setting after you apply power to the module, you must cycle the power to the module in order for the new setting to be enabled.

The control panel supports one module. Set the address switch to 1 to use the module with a B5512/B4512/B3512 control panel.

8.4.2 Supervision

The control panel supervises in two ways:

- Module supervision. The control panel supervises the module through polling. If the module does not respond to the control panel polling, the control panel declares the device missing.
- Communication supervision. The control panel supervises the communication path by polling the central station receiver. If the poll is missed from either side, a communication fault is declared both at the control panel and the central station receiver.

8.4.3 Installation and control panel wiring (B450)

Ensure that there is enough power for the module and other powered devices you want connected to the system.
Refer to *On-board outputs, page 60*.

Caution!
Remove all power (AC and battery) before making any connections. Failure to do so might result in personal injury and/or equipment damage.

Insert the communication module

Insert the desired communication module into the slot of the B450 until you hear the module “click” into place.

Install the module

1. Set the module address to one using the address switch before you install it in the enclosure.
2. Install the module in the enclosure with the control panel or in an adjacent enclosure that is no more than 1000 ft (305 m) using 18 AWG to 22 AWG (1.02 mm to 0.65 mm) wire from the control panel.
3. Use the screws provided with the module to secure the module in the enclosure.

Wire to the antenna

The module has a threaded connector for connection to an antenna. Route the antenna cable through a wire knockout in the top of the enclosure. Connect the antenna cable to the module. Secure the antenna cable to the outside of the enclosure.

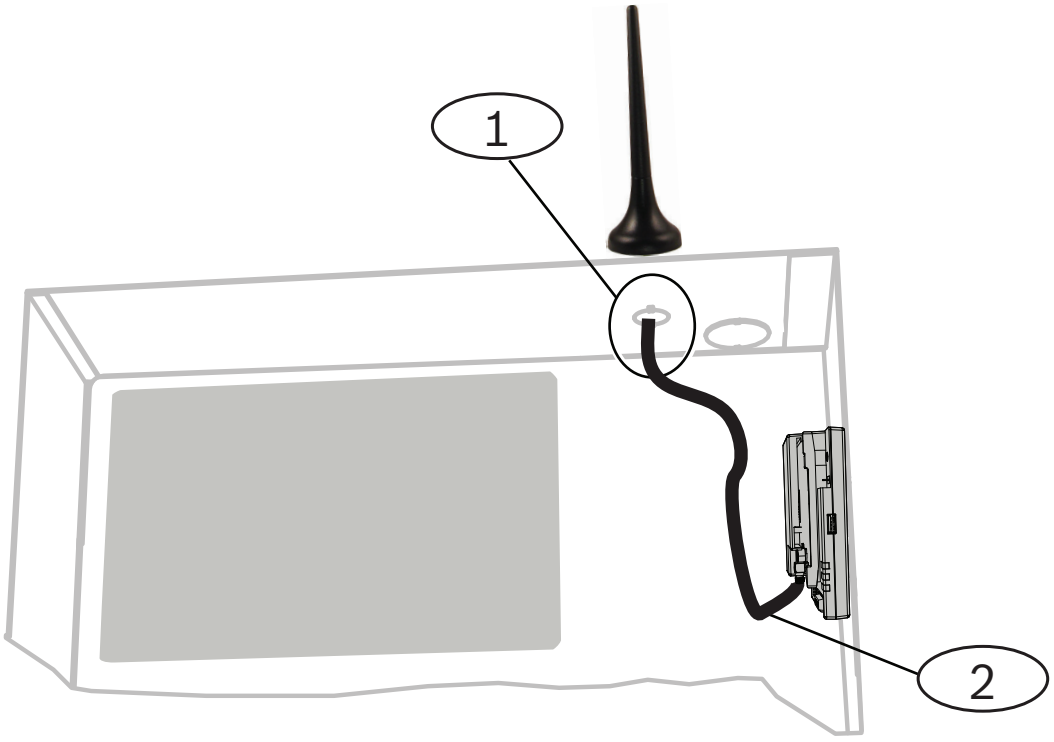


Figure 8.5: Antenna installation

Callout — Description
1 — B44x plug-in cellular communicator antenna (routed through any knock-out)
2 —B44x plug-in cellular communicator antenna cable (connected to the module)

When you wire an SDI2 module to a control panel, you can use either the terminal strip labeled with PWR, A, B, and COM to wire to terminals labeled PWR, A, B, and COM on the control panel, or you can use the P6 interconnect wiring connector and the included interconnect cable.

For terminal wiring, use 18 AWG to 22 AWG (1.02 mm to 0.65 mm) wire.

Notice!

Use either the terminal strip wiring or interconnect wiring to the control panel. Do not use both. When connecting multiple modules, you can combine terminal strip and interconnect wiring connectors in series.

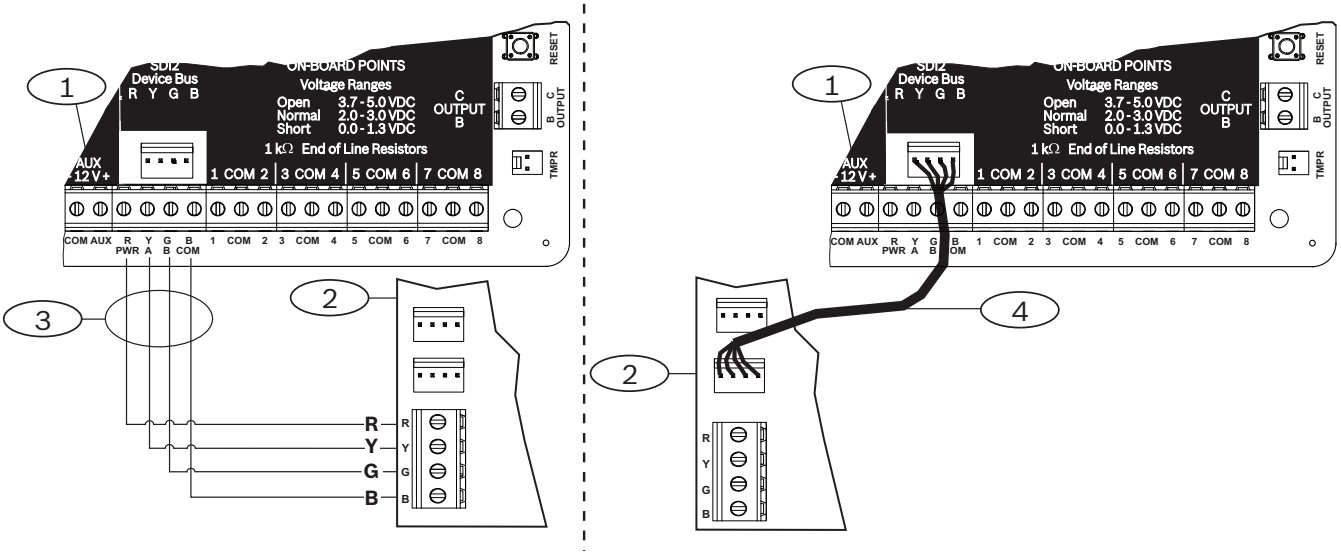


Figure 8.6: B450 to control panel wiring - terminal strip or interconnect wiring connector (B5512 shown)

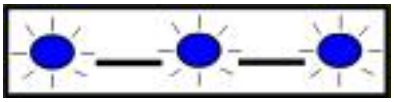
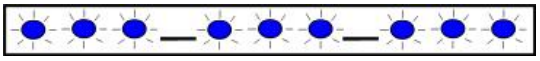
Callout — Description
1 — Control panel
2 — Module
3 —Terminal strip wiring
4 — Interconnect cable

8.4.4 Diagnostic LEDs

The B450 includes the following on-board LEDs to assist with troubleshooting:

- Heartbeat (system status).
- RX (receive).
- TX (transmit).

The plug-in module also includes LEDs for troubleshooting and status.

Flash pattern	Function
 Flashes once every 1 sec	Normal state. Indicates normal operation.
 3 quick flashes every 1 sec	Communication error state. Indicates a bus communication error with the control panel.

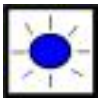
Flash pattern	Function
 On Steady	Trouble state. Indicates a trouble condition exists. Examine the other LEDs to determine the trouble condition.
Off	LED trouble state. Indicates the module is not powered up, or there is a failure in the module. Check for proper installation.

Table 8.8: Heartbeat LED descriptions

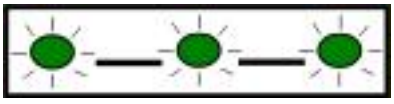
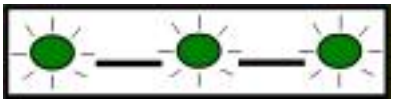
Flash pattern	Function
RX (Receive)  Flashing	Occurs every time a packet is received on-air.
TX (Transmit)  Flashing	Occurs every time a packet is transmitted on-air.

Table 8.9: RX and TX LED descriptions

Refer to the module's *Installation and Operation Guide* for more information on the LEDs and troubleshooting.

8.5 Compatible receivers for IP communication

Sending Conettix IP Ethernet reports or Modem4 telephone reports requires a Bosch central station receiver firmware update when existing equipment is in place. The following receivers are compatible with B5512/B4512/B3512 control panels when updated to the listed CPU versions and managed with the listed software version:

Receiver	CPU version	D6200 version	Formats
Conettix D6600 Communications Receiver/ Gateway (with D6641 line cards installed only)	01.10.00	2.00	Contact ID Modem4
Conettix D6100IPv6 Communications Receiver/Gateway	61.10.00	2.00	Contact ID Modem4
Conettix D6100i Communications Receiver/Gateway	61.10.00	2.00	Contact ID Modem4

9 Keypads, keyswitches, keyfobs and transmitters

The system can use keypads, maintained or momentary contact keyswitches, wireless RADION keyfobs or Inovonics transmitters, or a combination of these options to turn areas on and off. B5512 control panels support up to 4 areas. B4512 control panels support up to 2 areas. B3512 control panels support 1 area.
Refer to *Areas and accounts, page 20* for a description of areas.

9.1 Keypads

Keypads are four-wire powered devices used to show system status and operate the system (turn areas on or off for example). Keypads connect to the control panel through the SDI2 bus. B5512/B4512 control panels support up to 8 keypads, in any combination of SDI2 keypad models. B3512 support up to 4 keypads.

SDI2 keypads connect to the SDI2 bus on the control panel using terminals PWR, A, B, and COM.
You can connect more than one keypad to the control panel by wiring them in parallel.
The control panel sends a trouble report if it loses communication with a keypad and a message appears on all keypads.
All SDI2 keypads have:
- User-adjustable volume
- Keypress tones
- A nightlight feature
- A display that shows system messages
- A sounder that emits warning tones
- Highly visible status indicators
- Backlit keys, with seven configurable backlight settings ranging from 0% to 100%

This section includes basic installation instructions for compatible keypads. For detailed installation instructions, refer to the corresponding keypad document listed in *Keypad documents, page 12*.

9.1.1 B915 Basic Keypad

The B915 Basic Keypad is an SDI2 bus compatible device. It offers the same commands and menu structure as the other B Series keypads.

9.1.2 B920 Two-line Alphanumeric Keypad

The B920 Two-line Alphanumeric Keypad (SDI2) is an SDI2 bus compatible device. The display shows two lines, 18 characters per line. Each keypad has 10 number keys and seven function keys.

9.1.3 B921C Two-line Capacitive Keypad with Inputs

The B921C/B921CW Two-line Capacitive Keypad is an SDI2 bus compatible device. The keypad features capacitive keys. The keypad detects open, short, normal, and ground fault circuit conditions on its sensor loops and transmits the conditions to the control panel. Each sensor loop is assigned a point number and transmits to the control panel individually.

9.1.4 B930 ATM Style Alphanumeric Keypad

The B930 ATM Style Alphanumeric Keypad (SDI2) is an SDI2 bus compatible device. The keypad features a bright five line display and eight softkeys.

9.1.5 B942 Touch Screen Keypad

The B942/B942W is an SDI2 bus compatible device. Each keypad has a credential reader, a presence sensor, a graphical interface for controlling the system, touch screen keys for data or command entry.

The keypad detects open, short, normal, and ground fault circuit conditions on its sensor loops and transmits the conditions to the control panel. Each sensor loop is assigned a point number and transmits to the control panel individually. The keypad includes one output.

9.1.6 Shortcuts and custom functions

B Series keypads include a Shortcuts feature. Shortcuts allow you to assign commonly used or custom functions to a Shortcuts menu. You create and assign shortcuts to keypads using RPS.

Custom functions

Custom functions allow you to combine multiple functions into a single function. Initiate custom functions from keypads by assigning them to the Shortcut menu.

Use RPS to create custom functions, give them a name, and assign them to a Shortcut.

The user must have the appropriate authority level enabled to use the custom function.

For more information on creating custom functions, assigning authority levels to the functions, assigning custom functions to a keypad’s Shortcuts, and other methods for initiating custom functions, refer to *RPS Help* or the control panel's *Program Entry Guide*.

9.1.7 Address settings

The control panel uses the keypad’s address setting for communication and bus supervision. If multiple keypads reside on the same system, each keypad must have a unique address.

9.1.8 Supervision

The control panel supervises all enabled keypads. Setting the keypad scope parameter to No Keypad disables the keypad at that address. Disabled keypads are not supervised.

Any failure to receive an expected response from a keypad results in a system fault (missing keypad) shows on all keypads. The control panel sends a keypad missing report to the central station, if configured.

9.1.9 Installation and control panel wiring (keypads)

Ensure that there is enough power for the keypad and other powered devices you want connected to the system.

Refer to *On-board outputs, page 60*.

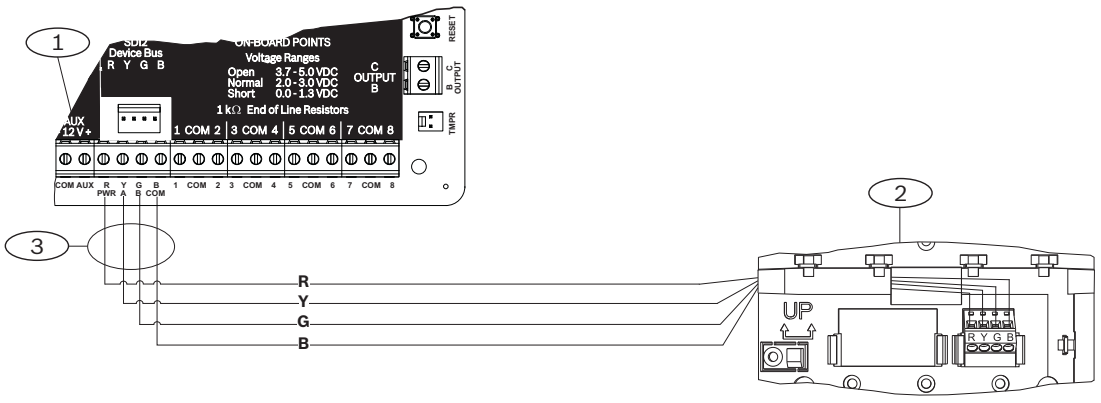
Installing a keypad:

1. Open the keypad.
2. Set the keypad address using the address switches
3. Use the provided anchors and screws to mount the keypad base on the wall.
4. Pull the necessary wiring through the mounting plate. Refer to *Wire to the control panel, page 55*.
5. Install the keypad on the base.

Wire to the control panel

You connect B Series keypads to the SDI2 data bus by parallel wire run from the control panel to each keypad, wire from keypad to keypad, or a combination of the two. Use a maximum of 7500 ft (2286 m) of 22 AWG (0.8 mm) wire for all devices connected to the SDI2 bus combined.

Keypad to control panel wiring (B5512 shown)



1	control panel
2	Keypad
3	Terminal strip wiring

Wire SDI2 keypads to the control panel

You connect B Series keypads to the SDI2 data bus by parallel wire run from the control panel to each keypad, wire from keypad to keypad, or a combination of the two. Use a maximum of 7500 ft (2286 m) of 22 AWG (0.8 mm) wire for all devices connected to the SDI2 bus combined.

SDI2 keypad to control panel wiring (B9512 shown)

Add figure!

Wire SDI keypads to the control panel

You connect SDI keypads to the SDIx data bus by parallel wire run from the control panel to each keypad, wire from keypad to keypad, or a combination of the two. Use a maximum of 7500 ft (2286 m) of 22 AWG (0.8 mm) wire for all devices connected to the SDIx bus combined.

SDI keypad to control panel wiring (B9512 shown)

Add figure!

9.1.10 Sensor loops overview and wiring (B921C/B942/B942W only)

Only the resistance on the loop limits the number of normally-open or normally-closed detection devices each sensor loop can supervise. Resistance on each sensor loop must be less than 100 Ω with the detection devices connected.

The keypad detects circuit conditions on its sensor loops and sends the conditions to the control panel. Each sensor loop has an assigned point number.

Use twisted-pair wire for the module sensor loops to avoid electromagnetic interference problems. Run wires away from the premises telephone and AC wiring.

To wire detection devices to keypad inputs, connect them to the keypad terminals labeled for COM, and 1, 2, 3, or 4. Wire resistance on each sensor loop must be less than 100 Ω with the detection devices connected. The terminal strip supports 12 to 22 AWG (0.65 to 2 mm) wires.

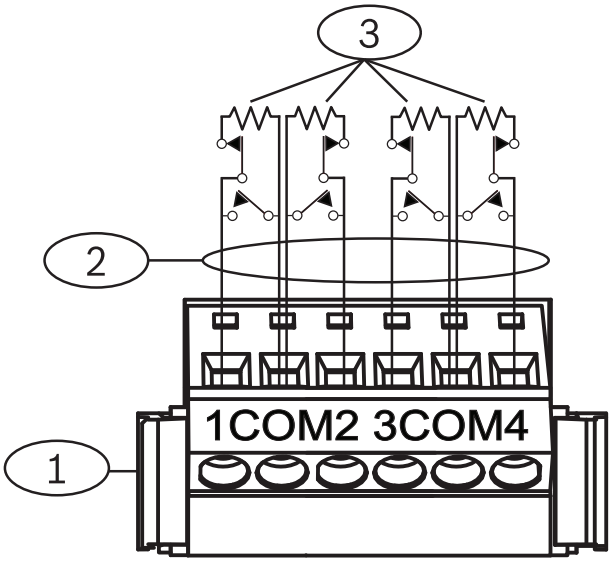


Figure 9.1: Keypad inputs wiring (B921C shown)

Callout — Description
1 — Keypad terminal strip
2 — Sensor loop
3 — 1 kΩ EOL resistor (P/N: F01U026703)

9.1.11 Output wiring (B942/B942W only)

The keypad provides one NO (normally open) output. (It includes NO and C (COMMON) terminals.) When the output is in an active (energized) state, the NO has continuity with the C terminal.

9.1.12 Troubleshooting

Keypads show a *Call for Service* message when they cannot communicate with the control panel. The most common causes are:

1. The address switch on the keypad is set to an address that is not programmed in the control panel. Change the address switch to the proper address, or program the control panel using RPS or a different keypad.
2. If your keypads are not powered from the control panel, the control panel might have lost power. Confirm the control panel has power.
3. The wiring from the keypad to the control panel is not correct or has failed. Resolve any wiring problems.

9.2 Keyswitches

You can connect a maintained or momentary contact keyswitch to turn an area All On (armed) or Off (disarmed). Connect the keyswitch to an on-board or off-board point's sensor loop. You can program outputs to activate arming status LEDs. Refer to *Outputs* in *RPS Help* and *Point Assignments* in the control panel's *Program Entry Guide*.

9.2.1 Operation

Maintained contact

For points connected to the keyswitch and programmed for a maintained contact, an open on the sensor loop turns the area All On (armed). The control panel force arms all faulted points, regardless of the entry in the FA Bypass Max program item. Returning the circuit to normal turns the area off.

Momentary contact

For points connected to the keyswitch and programmed for a momentary contact, shorting the arming sensor loop toggles the area's arming state between All On (armed) and Off (disarmed). The control panel force arms all faulted points, regardless of the entry in the FA Bypass Max program item.

Refer to *Area Parameters* and *Point Assignments* in *RPS Help* or the control panel's *Program Entry Guide*.

Silence the bell

To silence the bell (stop Alarm Bell output) if the system is On (armed), operate the keyswitch to turn the area off. If the area is disarmed, turn the keyswitch once to start the arming process. Turning the keyswitch a second time stops the arming process and silences the bell.

9.2.2 Installation and control panel wiring (keyswitches)

For maintained switches, connect the EOL resistor for the point at the keyswitch so that the switch opens the circuit when it operates. A short on the circuit produces an alarm if the area is armed and a trouble if it is disarmed.

For momentary keyswitches, connect the EOL resistor at the keyswitch point so that when the keyswitch operates, it shorts the resistor. An open on the circuit causes an alarm if the area is on (armed) and a trouble if it is off (disarmed).

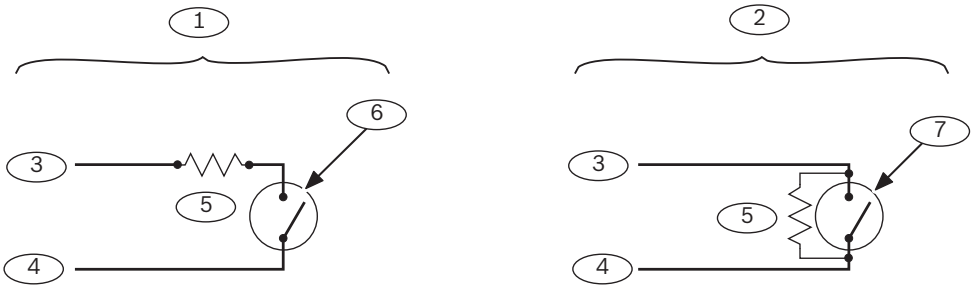


Figure 9.2: Keyswitch wiring

Callout — Description
1 — Maintained keyswitch
2 — Momentary keyswitch
3 — Common
4 — Point input
5 — 1 kΩ resistor (P/N: 4998143839)
6 — Open on a circuit arms the area
7 — Short on a circuit toggles the arming state

Keyswitches are not intended for use in UL listed systems.

9.3 RADION keyfobs and Inovonics pendant transmitters

B5512 control panels support up to 50 wireless RADION keyfobs or 50 Inovonics pendant transmitters, one for each of the 50 users the control panel supports. B4512 control panels support up to 32 wireless RADION keyfobs or 32 Inovonics pendant transmitters, one for each of the 32 users the control panel supports. B3512 control panels support up to 10 wireless RADION keyfobs or 10 Inovonics pendant transmitters, one for each of the 10 users the control panel supports.
The control panels support two RADION keyfob models, RFKF-FB-A and RFKF-TB-A, that communicate with the control panel using the RADION receiver SD. The control panels support several Inovonics pendant transmitter models.

RADION keyfob FB
The RFKF-FB-A four button keyfob is designed for arming (lock icon) and disarming (unlock icon) the system remotely. You can configure the programmable buttons at the control panel for additional control functionality. To operate the programmable buttons, simply press and hold either button for at least one sec in order for the desired feature to work.
- Uniquely coded arm and disarm buttons
- Panic alarm
- LED indicator
- Programmable option buttons

RADION keyfob TB
The RFKF-TB-A two button keyfob is designed for arming (lock icon) and disarming (unlock icon) the system remotely. To operate these buttons, simply press and hold either button for at least one sec in order for the desired feature to work.
- Uniquely coded arm and disarm buttons
- Panic alarm
- LED indicator

Notice!
For specific installation and operation instructions, please refer to the *RADION keyfob* (*RFKF-FB-TB/RFKF-FB-TB-A) Installation Guide* (P/N: F01U261820) and the *RADION receiver SD (B810) System Reference Guide*.

Custom functions and the RADION keyfob FB
Using RPS, you can assign two custom functions to a RADION keyfob FB, allowing a user to initiate the functions wirelessly. For more information, refer to *RPS Help* or the control panel's *Program Entry Guide*.

10 On-board outputs

10.1 Powered outputs

10.1.1 Circuit protection

Three self-resetting circuit breakers protect the control panel from short circuits on the continuous and programmable power outputs.
If programmed for power supervision, the control panel adds a missing battery event to the event log. If programmed for battery fault reports, the control panel sends a BATTERY MISSING report in the Modem4 communication format, or Control Panel Battery Missing (311) report in the Contact ID format.
One self-resetting circuit breaker protects the AUX (auxiliary power) terminal.
Another self-resetting circuit breaker protects the OUTPUT A's C terminal.
The third self-resetting circuit breaker protects PWR/R terminal (power) of the SDI2 terminal block.

Notice!
UL requires any device powered from a power output to be supervised.

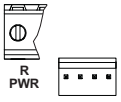
10.1.2 Total available power

The control panel produces up to 800 mA of combined power at 12.0 VDC nominal to power peripheral devices. The outputs listed below and OUTPUT A share the available power.

AUX terminal (auxiliary power)

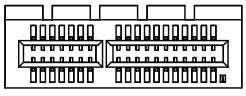
Powers devices requiring continuous power (for example, motion detectors).

R/PWR terminal and power output of the interconnect connector (SDI2 power)



Power SDI2 devices such as a B208 Octo-input Module, a B308 Octo-output Module, or B920/ B930 keypads.

Plug-in module connector



Connect plug-in modules such as the B440 Conettix Plug-in Cellular Communicator.

OUTPUT A

Output A can be configured as a dry contact (contact rating is 3 Amps), switched common (sink current), or a powered output. As a powered output, it can provide alarm power or switched auxiliary power. The default configuration for Output A makes it a powered output providing alarm power. Use OUTPUT PARAMETERS in RPS to configure programmable outputs.

Refer to *Configure OUTPUT A using the jumper, page 27*.

10.2 Open collector outputs

OUTPUT B and C

Outputs B and C are open collector outputs that can sink up to 50 mA of power (+12 VDC), when activated.

As an example, the figure below shows using Outputs B and C to trigger the relays of a D134 Dual Relay Module.

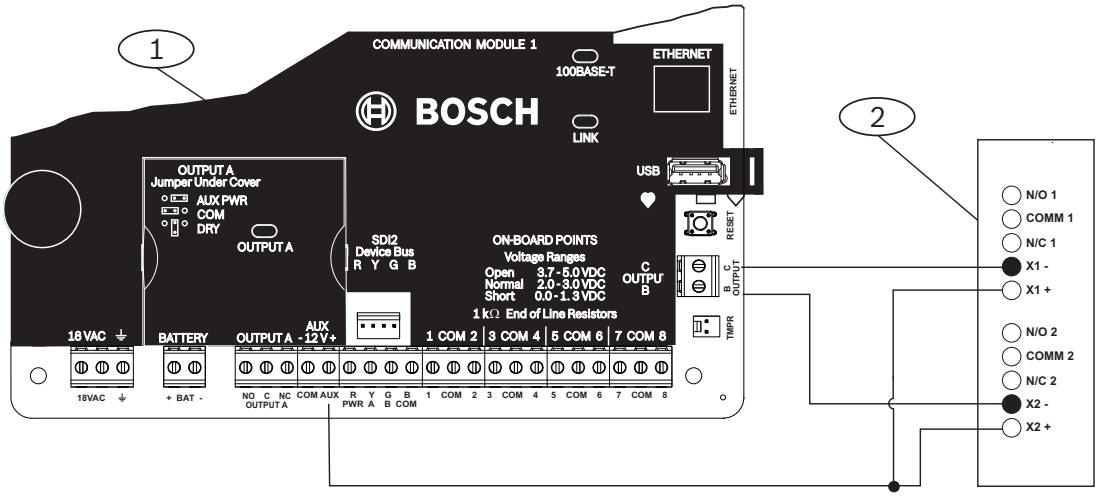


Figure 10.1: OUTPUT B and C wiring (B5512 shown)

Callout — Description
1 — Control panel
2 — D134 Dual Relay Module

Use OUTPUT PARAMETERS in RPS to configure programmable outputs.

11 Off-board outputs

11.1 B308 Octo-output Module

The B308 is an eight output expansion device that connects to B5512/B4512 control panels through the SDI2 bus. This module is supervised for the connection to the SDI bus. It provides eight independently controlled outputs. Each output can operate as either normally open or normally closed. You can configure the function for each output on the module individually. Refer to *Output Parameters* in *RPS Help* or the control panel's *Program Entry Guide*.
B5512 control panels support up to 5 modules to provide 40 outputs. B4512 control panels support up to 3 modules to provide 24 outputs.
B308 Octo-output Modules connect to the SDI2 bus on the control panel using terminals PWR, A, B, and COM, or using the SDI2 interconnect wiring connector. You can connect more than one module to the control panel by wiring them in parallel. This section includes basic installation instructions. For detailed installation instructions, refer to the *Octo-output Module (B308) Installation and Operation Guide*.

Notice!
Do not connect fire and non-fire devices to the same B308 Octo-output Modules. The B3512 does not support the B308 module.

Outputs overview
Each module output provides a Form C dry contact rated for .001 to 1.0 A at 5 to 24 VDC (resistive load). Normally-open, common, and normally-closed terminals are available for each relay output. When an individual output is activated, continuity exists between the normally open and common terminals. When the output is not activated, continuity exists between the normally closed and common terminals.

11.1.1 SDI2 address settings

Notice!
The module reads the address switch setting only during power up. If you change the setting after you apply power to the module, you must cycle the power to the module in order for the new setting to be enabled.

If multiple B308 modules reside on the same system, each B308 module must have a unique address.
The number of outputs allowed by the control panel determines the valid addresses.

Octo-output module number	Supported outputs
01	11 – 18
02	21 – 28
03	31 – 38
04*	41 – 48*
05*	51 – 58*
* Valid for the B5512 only.	

Table 11.1: Octo-output module valid relay numbers

11.1.2 Supervision

The control panel enables supervision of B308 Octo-output Modules on the SDI2 bus when the Output Source of an off-board output is set to Octo-output.
With any failure to receive an expected response from an SDI2 module, all keypads show in a system fault display. The control panel sends a module trouble report to the central station (if configured for module trouble reports).

11.1.3 Installation and control panel wiring (B308)

Ensure that there is enough power for the module and other powered devices you want connected to the system.
Refer to *On-board outputs, page 60*.

Caution!
Remove all power (AC and battery) before making any connections. Failure to do so might result in personal injury and/or equipment damage.

Install the module

1. Set the module address using the address switches before you install it in the enclosure.
2. Install the module in the enclosure with the control panel or in an adjacent enclosure that is no more than 1000 ft (305 m) using 18 AWG to 22 AWG (1.02 mm to 0.65 mm) wire from the control panel.
3. Use the screws provided with the module to secure the module in the enclosure.

Wire to the control panel

When you wire an SDI2 module to a control panel, you can use either the terminal strip labeled with PWR, A, B, and COM to wire to terminals labeled PWR, A, B, and COM on the control panel, or you can use the P6 interconnect wiring connector and the included interconnect cable.
For terminal wiring, use 18 AWG to 22 AWG (1.02 mm to 0.65 mm) wire.

Notice!
Use either the terminal strip wiring or interconnect wiring to the control panel. Do not use both. When connecting multiple modules, you can combine terminal strip and interconnect wiring connectors in series.

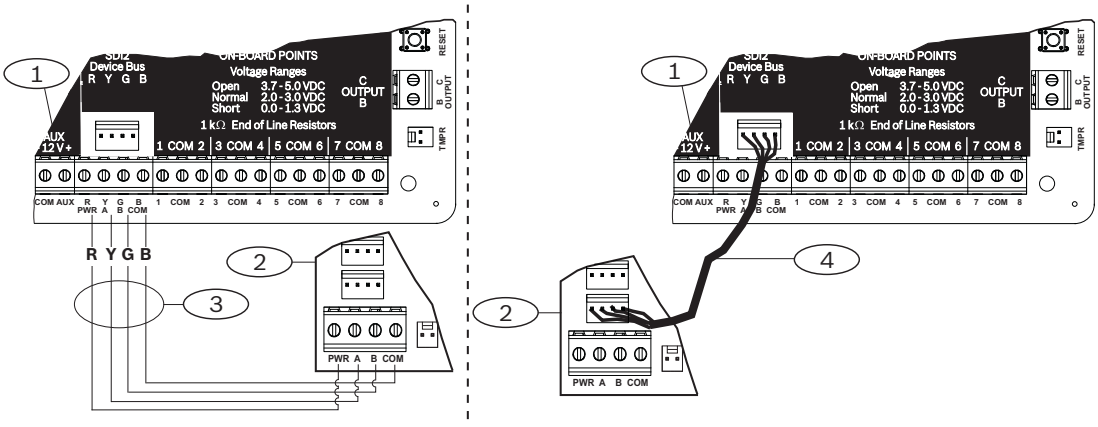
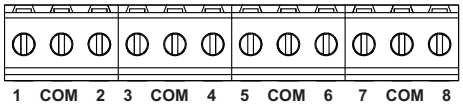


Figure 11.1: B308 to control panel wiring - terminal strip or interconnect wiring connector

Callout — Description
1 — Control panel
2 — Module
3 — Terminal strip wiring
4 — Interconnect cable (P/N: F01U079745) (included)

12 On-board points



The control panel provides eight on-board points. Each point functions independently and does not interfere with the operation of the others. The control panel monitors the sensor loops for normal, shorted, or open conditions between an input terminal and any of the point common terminals.
The programming for the point determines how the control panel responds to those conditions.
The control panel ignores sensor loops (both on-board and off-board) for 60 sec after power up to ensure that any connected devices stabilize.
Hold-up zones shall be supervised with an EOL resistor.

12.1 Point sensor loops

Notice!
These points can be used for household fire applications. You can connect four smoke detectors to these points for example.

When wiring the on-board points, install a 1 kΩ resistor at the far end of the sensor loop to provide a reference for supervision. You can connect dry contact sensing devices in series (normally closed) or in parallel (normally open) to any of these loops.
The number of normally open and normally closed detection devices each sensor loop can supervise is limited only by the resistance on the loop. The total resistance for the wire length and contacts, minus the end-of-line (EOL) resistor, must not exceed 100 Ω.

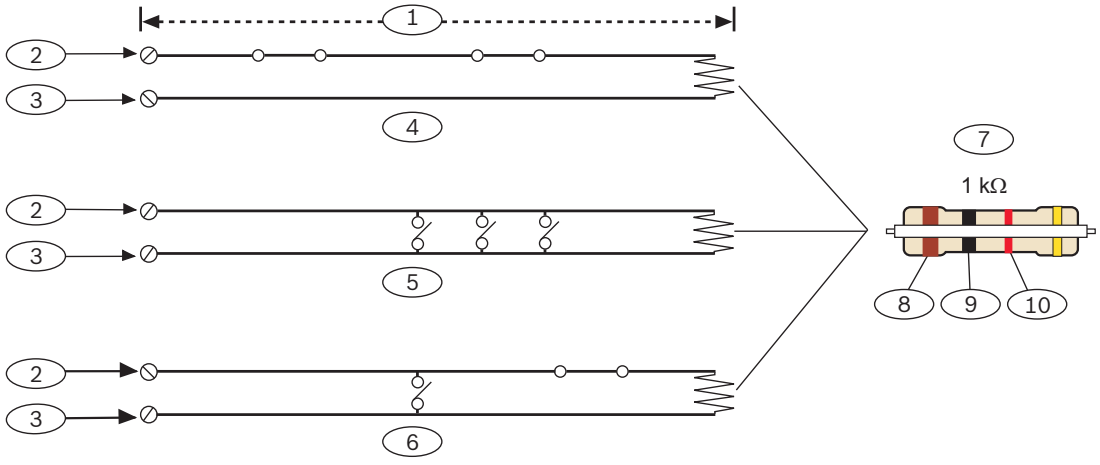


Figure 12.1: On-board point sensor loop wiring

Callout — Description
1 — 100 Ω maximum
2 — Point input terminal
3 — Common

Callout — Description
4 — Normally closed contacts (NC)
5 — Normally open contacts (NO)
6 — Combination: Normally open contacts and normally closed contacts (NO/NC)
7 —1 kΩ EOL resistor (P/N: F01U026703)
8 — Brown
9 — Black
10 — Red

Notice!
You do not need to install the EOL resistor for unused points (Point Index parameter set to 0 [zero]).

12.2 Point voltage parameters

You can determine the condition of on-board points 1 to 8 by measuring the voltage across the point input terminal (1 to 8) and the point COM terminal. The sensor loop wiring must be connected and the 1 kΩ EOL resistor must be in place.

Loop	Voltage range
Open	Greater than 3.7 VDC, but less than 5.0 VDC.
Normal	Greater than 2.0 VDC, but less than 3.0 VDC.
Shorted	Greater than 0.0 VDC, but less than 1.3 VDC.

Table 12.1: Point voltage parameters

12.3 Point response time

The control panel scans on-board and off-board point sensor loops every 250 ms. The Debounce program item in the Point Assignment section of the software determines point response time by setting the number of times the control panel scans a point before generating an alarm.
The debounce count can range from 2 to 15; therefore, point response time ranges from 250 ms to 6 sec. The default for debounce count is 2.

Notice!
Increasing debounce might cause missed alarms. If you increase the debounce count, detection devices can enter alarm and reset without exceeding the point response time. Debounce does not apply to points with the Point Source configured as Wireless or Output.

13 Off-board points

13.1 B208 Octo-input Module

The octo-input module is an eight point expansion device that connects to the B5512/B4512 control panel through the SDI2 bus. This module is supervised and communicates back to the control panel all point status changes. The module's points work the same as the points on the control panel.
B5512 control panels support up to 4 modules. B5512 control panels support up to 2 modules.
B208 Octo-input Modules connect to the SDI2 bus on the control panel using terminals PWR, A, B, and COM, or using the SDI2 interconnect wiring connector. You can connect more than one module to the control panel by wiring them in parallel. This section includes basic installation instructions. For detailed installation instructions, refer to the *Octo-input Module (B208) Installation and Operation Guide*.

Notice!
Do not connect fire and non-fire devices to the same B208 Octo-input Modules. The B3512 does not support the B208 module.

13.1.1 SDI2 address settings

Notice!
The module reads the address switch setting only during power up. If you change the setting after you apply power to the module, you must cycle the power to the module in order for the new setting to be enabled.

If multiple B208 modules reside on the same system, each B208 module must have a unique address.
The number of points allowed by the control panel determines the valid addresses.

Octo-input module number	Corresponding point numbers
01	11 – 18
02	21 – 28
03*	31 – 38*
04*	41 – 48*
*Valid for the B5512 only.	

Table 13.1: Octo-input module corresponding point numbers

13.1.2 Supervision

The control panel automatically enables supervision of B208 Octo-input Modules on the SDI2 bus when the Point Source of a point assignment is set to Octo-input.
Each module supports a fixed range of point assignments.

With any failure to receive an expected response from an SDI2 module, all keypads show in a system fault display. The control panel sends a module trouble report to the central station (if configured for module trouble reports).

13.1.3 Installation and control panel wiring (B208)

Ensure that there is enough power for the module and other powered devices you want connected to the system.

Refer to *On-board outputs, page 60*.

Caution!

Remove all power (AC and battery) before making any connections. Failure to do so might result in personal injury and/or equipment damage.

Install the module

1. Set the module address using the address switches before you install it in the enclosure.
2. Install the module in the enclosure with the control panel or in an adjacent enclosure that is no more than 1000 ft (305 m) using 18 AWG to 22 AWG (1.02 mm to 0.65 mm) wire from the control panel.
3. Use the screws provided with the module to secure the module in the enclosure.

Wire to the control panel

When you wire an SDI2 module to a control panel, you can use either the terminal strip labeled with PWR, A, B, and COM to wire to terminals labeled PWR, A, B, and COM on the control panel, or you can use the P6 interconnect wiring connector and the included interconnect cable.

For terminal wiring, use 18 AWG to 22 AWG (1.02 mm to 0.65 mm) wire.

Notice!

Use either the terminal strip wiring or interconnect wiring to the control panel. Do not use both. When connecting multiple modules, you can combine terminal strip and interconnect wiring connectors in series.

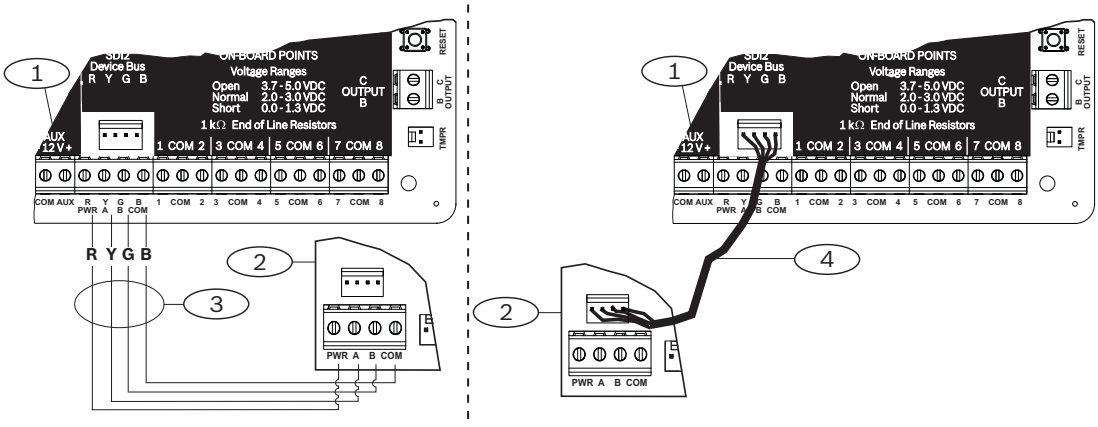


Figure 13.1: B208 to control panel wiring - terminal strip or interconnect wiring connector

Callout — Description
1 — Control panel
2 — Module

Callout — Description
3 — Terminal strip wiring
4 — Interconnect cable (P/N: F01U079745) (included)

13.1.4 Sensor loops overview and wiring

Only the resistance on the loop limits the number of normally-open or normally-closed detection devices each sensor loop can supervise. Resistance on each sensor loop must be less than 100 Ω with the detection devices connected.

The module detects circuit conditions on its sensor loops and sends the conditions to the control panel. Each sensor loop has an assigned point number.

Use twisted-pair wire for the module sensor loops to avoid electromagnetic interference problems. Run wires away from the premises telephone and AC wiring.

Sensor loop terminals are labeled 1 through 8. Terminals 1 and 2, 3 and 4, 5 and 6, and 7 and 8 share common terminals. The common terminals for each pair are labeled COM.

Terminate each module sensor loop with a 1 kΩ EOL resistor. Attach a resistor even if you do not enable the loop.

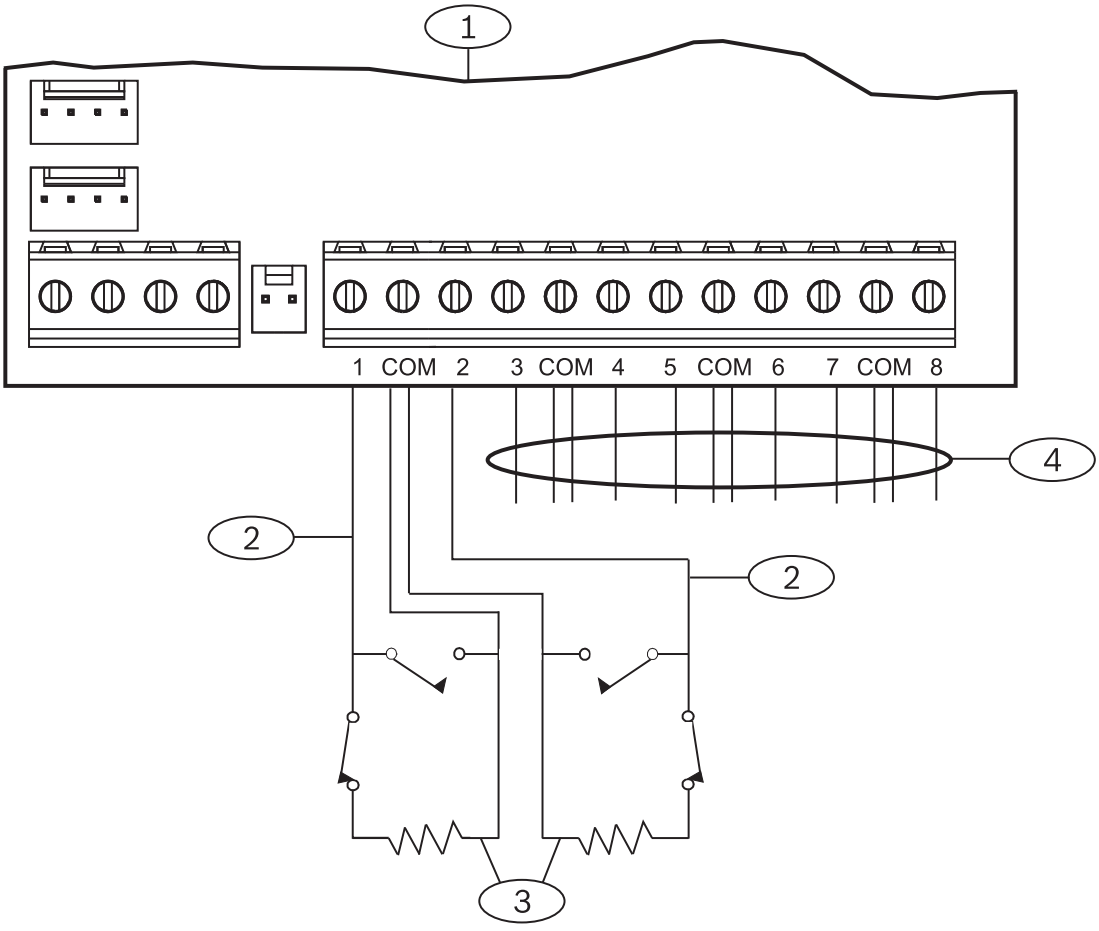


Figure 13.2: B208 sensor loop wiring

Callout — Description
1 — Module
2 — Sensor loop
3 — 1 kΩ EOL resistor (P/N: F01U026703)
4 — Wiring to additional sensor loops

13.1.5 Test off-board points

Use the Service Walk Test to ensure that all off-board points operate properly.

Notice!

Walk test and Service Walk test do not show extra points.

If the point assignment switches on an octo-input module are set incorrectly, missing and extra points can occur. If the address switches on two or more modules are set to the same address, the points associated with that address will not test correctly.

13.1.6 Extra Point events

The control panel generates Extra Point events when it detects a fault for a point with its Point Index set to 0 (Unassigned). A point is considered enabled when its Point Source is set to Octo-input (SDI2). A SDI2 Wireless point is considered enabled when its Point Source is Wireless and it has an RFID assigned.

On-board points cannot produce Extra Point events. Points that are Service Bypassed cannot produce Extra Point events.

14 Wireless modules

14.1 B810 receiver

The B810 is a wireless receiver that supports the full line of RADION wireless devices and the RADION repeater. The receiver supports up to 504 wireless point devices, up to 1000 keyfobs, and up to 8 repeaters.
The control panel supports one B810 or one B820.
Connect a RADION receiver SD to the SDI2 bus on the control panel using terminals PWR, A, B, and COM. This section includes basic installation instructions. Refer to the *RADION receiver SD (B810) Installation Guide* for detailed installation instructions.

14.1.1 SDI2 address settings

Notice!
The module reads the address switch setting only during power up. If you change the setting after you apply power to the module, you must cycle the power to the module in order for the new setting to be enabled.

The control panel supports only address 1.

14.1.2 Supervision

The control panel enables supervision of the module when you enroll at least one RF device. Available RF devices on the control panel include RF Repeaters, wireless points, or user keyfobs. Any failure to receive an expected response from an SDI2 module results in a system fault display on all keypads and a fault event sent to the central station.

14.1.3 Installation and control panel wiring (B810)

Ensure that there is enough power for the module and other powered devices you want connected to the system.
Refer to *On-board outputs, page 60*.

Caution!
Remove all power (AC and battery) before making any connections. Failure to do so might result in personal injury and/or equipment damage.

Install the module
For best receiver reception results, place the receiver in a central location among the transmitters.

1. Open the module.
2. Set the module to address 1 using the address switch.
3. Use the provided anchors and screws to mount the module base on the wall.
4. Pull the necessary wiring through the mounting plate. Refer to *Wire to the control panel, page 73*.
5. Install the module on the base.

Notice!
Mount the receiver in a location removed from metal. Metal objects (duct work, wire mesh screens, boxes) reduce RF range.

Wire to the control panel

When wiring a module to a control panel, use the terminal strip labeled with R, Y, G, and B to wire to terminals labeled PWR, A, B, and COM on the control panel. Use 18 AWG to 22 AWG (1.02 mm to 0.65 mm) wire. Do not exceed a wire length of 1000 ft (300 m) from the control panel.

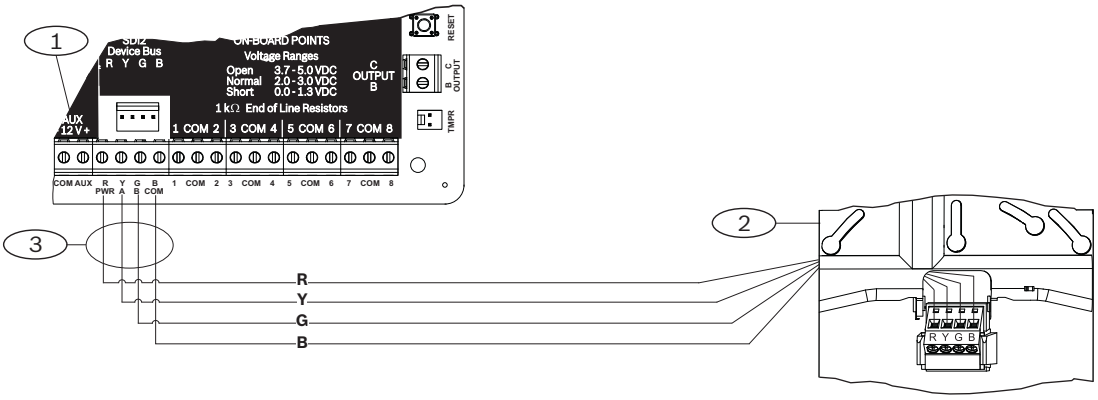


Figure 14.1: B810 control panel wiring

Callout — Description
1 — Control panel
2 — Module
3 — Terminal strip wiring

14.2 B820 SDI2 Inovonics Interface Module

The B820 SDI2 Inovonics Interface Modules allow a control panel to interface with an Inovonics EN4200 EchoStream Serial Receiver.
The control panel supports one B810 or one B820.
This section includes basic installation instructions. Refer to the *SDI2 Inovonics Interface Module (B820) Installation Guide* for detailed installation instructions.

14.2.1 SDI2 address settings

Notice!
The module reads the address switch setting only during power up. If you change the setting after you apply power to the module, you must cycle the power to the module in order for the new setting to be enabled.

The control panel supports only address 1.

14.2.2 Supervision

The control panel enables supervision of the module when you enroll at least one RF device. Available RF devices on the control panel include RF Repeaters, wireless points, or user keyfobs. Any failure to receive an expected response from an SDI2 module results in a system fault display on all keypads and a fault event sent to the central station.

14.2.3 Installation and control panel wiring (B820)

Ensure that there is enough power for the module and other powered devices you want connected to the system.
Refer to *On-board outputs, page 60*.

Caution!
Remove all power (AC and battery) before making any connections. Failure to do so might result in personal injury and/or equipment damage.

Install the module

1. Set the module address using the address switch before you install it in the EN4200 housing.
2. Use a slotted screwdriver top press the housing release tabs and open the housing. Remove the backing from the Velcro piece found in the product packaging to reveal the Velcro adhesive. Place the Velcro's adhesive side onto the back of the module. Remove the remaining backing to use to secure the module in the housing.
3. Insert the module into the house, connect the serial ports on the B820 and EN4200, and then press gently.
4. Refer to the *EN4200 EchoStream Serial Receiver Installation Instructions* for mounting and wiring instructions for the receiver.

Wire to the control panel

When wiring a module to a control panel, use the terminal strip labeled with PWR, A, B, and COM to wire to terminals labeled PWR, A, B, and COM on the control panel. For terminal wiring, use 18 AWG to 22 AWG (1.02 mm to 0.65 mm) wire. Do not exceed a wire length of 1000 ft (300 m) from the control panel.

Route the cabling through the control panel enclosure, and through the EN4200 housing.

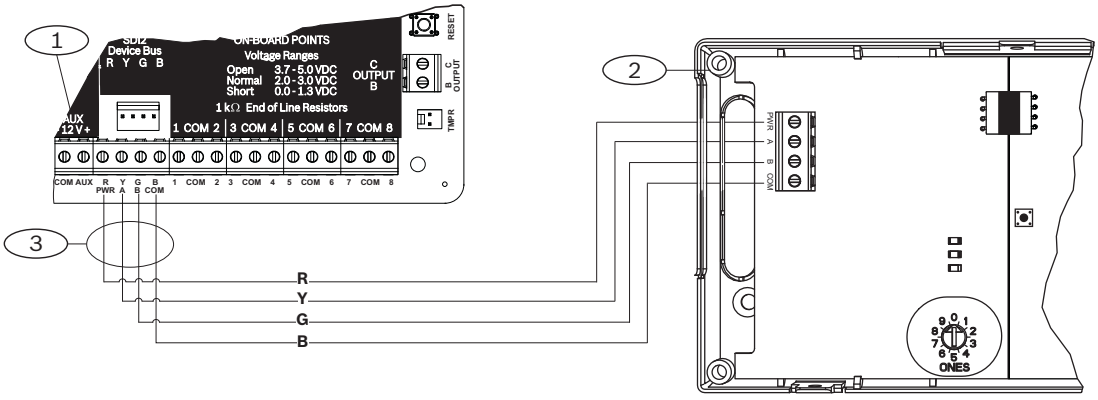


Figure 14.2: B820 to control panel wiring (B5512 shown)

Callout — Description
1 — Control panel
2 — Module
3 — Terminal strip wiring

15 Program and test the control panel

When you complete the hardware installation, reconnect the battery, and then plug in the transformer. Next, program the control panel, and then test the control panel and configuration.

Notice!
After system installation and any control panel programming, perform a complete system test. A complete system test includes testing the control panel, all devices, and communication paths for proper operation.

15.1 Program the control panel

Use RPS or a keypad to program the control panel. Refer to *RPS Help* and *Keypad Installer menu, page 103*.

15.2 Walk test the system

When you perform a walk test, the control panel includes only points points assigned to areas within the keypad's scope, based on the walk test type chosen. During a walk test, the points do not process normally, and only indicate that they were tested. You can perform four different types of walk tests on this system.
Each walk test type automatically terminates after 20 min of inactivity.
All point verification is disabled for all points during any walk test.
The control panel sends Walk Test Start and Walk Test End reports to the central station.

15.2.1 Fire walk test

A fire walk test allows you to test **all** visible, 24-hr points.
A fire walk test includes multiple point types. Points must meet the following criteria:
- Have a point source other than Unassigned
- Have a point index not set to Disabled (must be non-zero)
- Are not service bypassed
- Are not invisible points
- Have a point type of Keyswitch maintained, Keyswitch momentary, Open/Close Point, Fire, Aux AC Supervision, or Gas

Performing a fire walk test:
1. Choose a keypad to conduct the test. Ensure that all areas are off (disarmed).
2. Open the Main menu and then go to the [3] Actions menu > [3] Test > [1] Walk Test > [1] Fire option.
3. The keypad shows the number of points that remain untested.
4. To view the list of points, press [ENTER] or [View untested points]. To scroll through the list of points, use ←/[PREV] or →/[NEXT].
5. When you fault a point (press the test button on a smoke detector for example), the keypad emits a brief tone and shows the point name.

Notice!
If the point loop has multiple detectors, then the keypad will emit a tone as confirmation for each fault detected.

15.2.2 Intrusion walk test

An intrusion walk test includes points meeting the following criteria:

– Have a point source other than Unassigned
– Point type must be for a Controlled Point; Part-On, Interior, or Interior Follower
– Are not service bypassed
– Are not invisible points

A controlled point can be programmed for trouble when disarmed.

Performing an intrusion walk test:

1. Choose a keypad to conduct the test. Ensure that all areas are off (disarmed).
2. Open the Main menu and then go to the [3] Actions menu > [3] Test > [1] Walk Test > [2] Intrusion option.
3. The keypad shows the number of points that remain untested.
4. To view the list of points, press [ENTER] or [View untested points]. To scroll through the list of points, use ←/[PREV] or →/[NEXT].
5. When you fault a point (open a door for example), the keypad emits a brief tone and shows the point name and that is has been tested (for example, Pt-4: P4 Follow Tested).

15.2.3 Service walk test

Service walk test allows you to walk test points assigned to any point type. The area scope of the keypad that initiates the walk test determines which points are included in the test. All points are included when the keypad scope is panel wide.

A service walk test includes:

– Points with a point source other than Unassigned
– Points that you have service bypassed

During a service walk test:

– The summary alarm and summary fire remain off, because there are no Fire or Burg alarm conditions to summarize.
– The test does not generate any Extra Point troubles.
– The test does not log any Extra Point events.

Performing a service walk test:

1. Choose a keypad to conduct the test. Ensure that all areas are off (disarmed).
2. Open the Main menu and then go to the [3] Actions > [3] Test > [1] Walk Test > [3] Service option.
3. Enter your passcode and press [ENTER]. The keypad shows the number of points that remain to be tested.
4. To view the list of points, press [ENTER] or [View untested points]. To scroll through the list of points, use ←/[PREV] or →/[NEXT].
5. When you fault a point (move in front of a motion sensor for example), the keypad emits a brief tone and shows the point name and information (for example, Area-1 Point-7 Onboard: Short).

15.2.4 Invisible walk test

An invisible walk test allows you to test both controlled points and 24-hr points. Points assigned to Point Indexes with the Invisible Point parameter set to Yes.

An invisible walk test includes points meeting the following criteria:

– Have a point source other than Unassigned

- Have a point index not set to Disabled (must be non-zero)
- Have a point index configured with the point type of 24-Hour, Part On, Interior, or Interior Follower
- Are not service bypassed

Performing an invisible walk test:

1. Choose a keypad to conduct the test. Ensure that all areas are off (disarmed).
2. Enter your passcode and press [ENTER]. The keypad shows the number of points that remain to be tested.
3. To view the list of points, press [ENTER] or [View untested points]. To scroll through the list of points, use ←/[PREV] or →/[NEXT].
4. When your fault a point (open a door for example), the keypad emits a brief tone and shows the name.

16 Control panel board overview

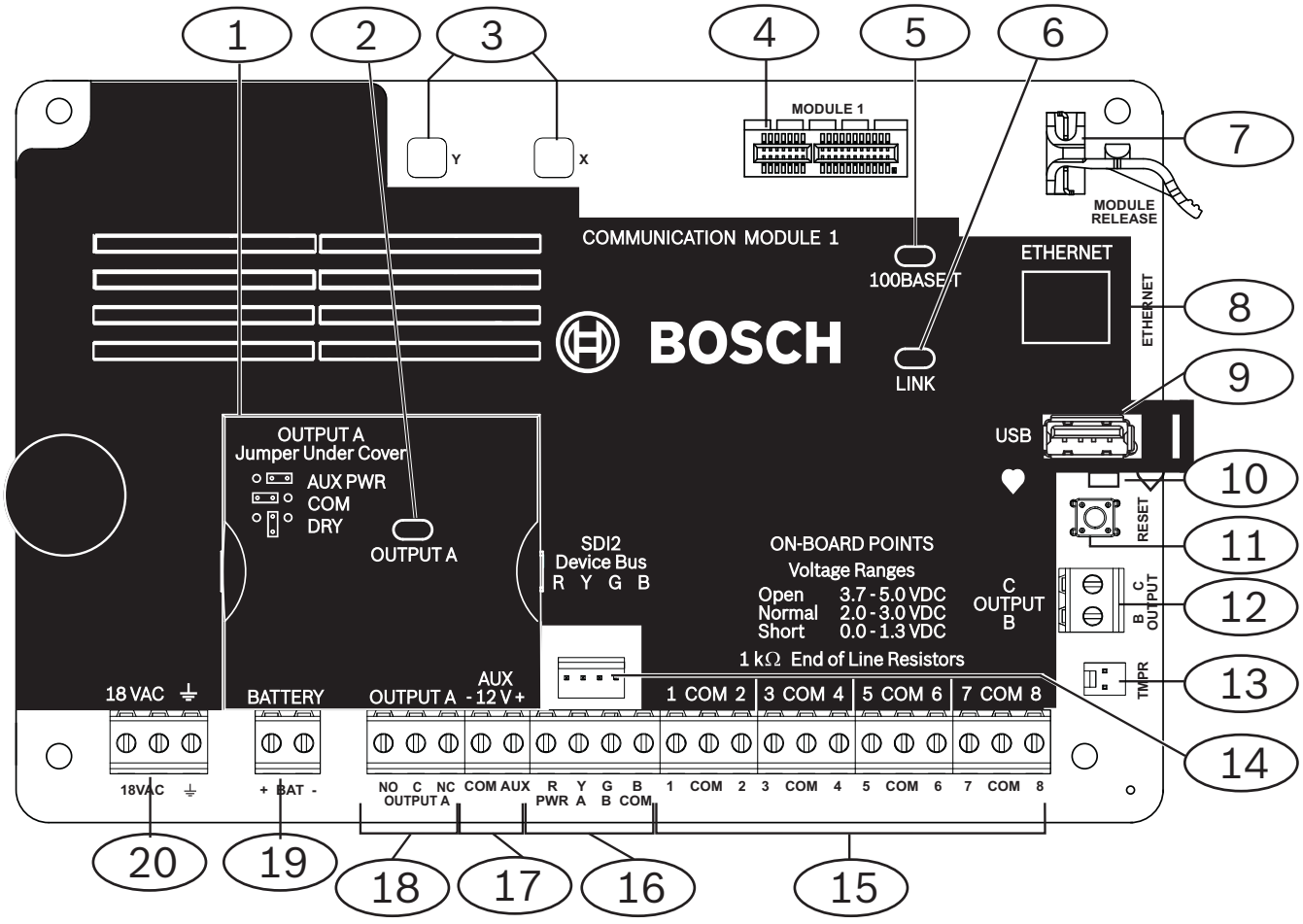


Figure 16.1: Control panel board overview (B5512 shown)

Callout — Description	For more information, refer to:
1 — Jumper to configure OUTPUT A	*Configure OUTPUT A using the jumper, page 27*
2 — OUTPUT A LED	
3 — Holes to stabilize plug-in modules	*Installation and module wiring (B430), page 38* or *Installation and module wiring (B44x), page 44*
4 — Plug-in module connector	
5 — Green 100BASE-T LED	*On-board Ethernet diagnostic LEDs, page 42*
6 — Yellow LINK LED	
7 — Plug-in module retention clip	*Installation and module wiring (B430), page 38* or *Installation and module wiring (B44x), page 44*
8 — On-board Ethernet connector	*On-board Ethernet connection, page 42*
9 — USB connector	*Programming, page 21*
10 — Heartbeat LED (blue)	*Installer keypads and SERVICE MODE, page 103*
11 — RESET button	*Installer keypads and SERVICE MODE, page 103*
12 — Terminals for Output B and Output C	*Open collector outputs, page 61*

Callout — Description	**For more information, refer to:**
13 — Tamper switch connector	*Install the enclosure and wiring label, page 25*
14 — SDI2 interconnect wiring connector	*SDI2 interconnect wiring, page 20*
15 — Sensor loop terminals for points 1 to 8	*On-board points, page 65*
16 — SDI2 terminals (power and data)	*SDI2 devices general system wiring, page 86*
17 — Auxiliary power terminals	*Total available power, page 60*
18 — Terminals for OUTPUT A	*Configure OUTPUT A using the jumper, page 27*
19 — Battery terminals	*Secondary (DC) power terminals, page 30*
20 — 18 VAC power input terminals	*Primary power terminals, page 30*

17 System wiring diagrams

17.1 System wiring overview

Notice!

For UL Certificated accounts, additional power can be obtained using only a UL Listed auxiliary 12.0 VDC regulated, power-limited power supply, such as the B520 Auxiliary Power Supply Module.

All terminals are power limited except BAT+ (battery positive).

All terminals are supervised except OUTPUT A, OUTPUT B, and OUTPUT C.

For proper supervision, do not loop wire under terminals. Break the wire run to provide supervision of connections.

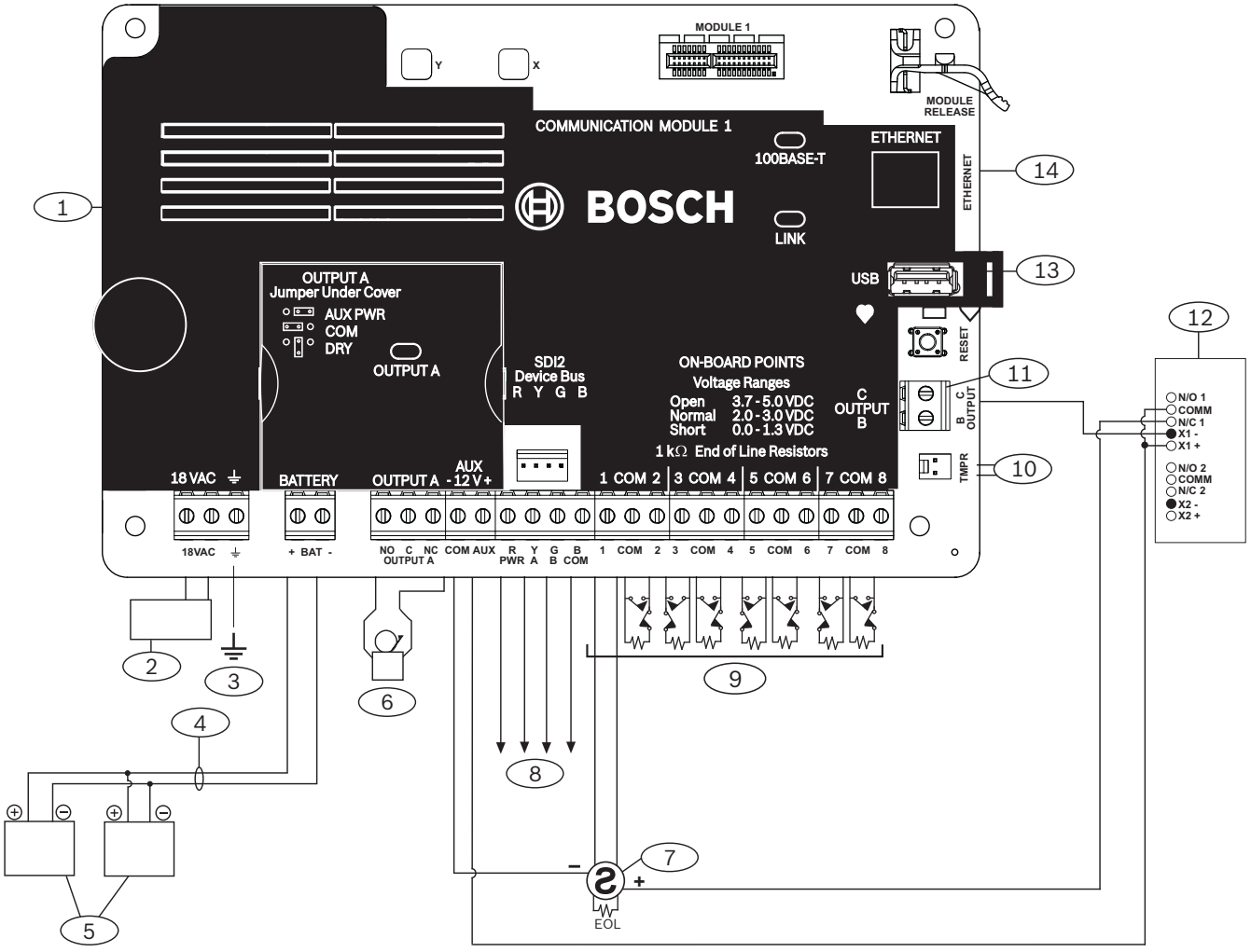


Figure 17.1: System wiring overview (B5512 shown)

Callout — Description	Callout — Description
1 — Control panel	8 — SDI2 wiring
2 — CX4010 UL Listed Class 2 Transformer 18 VAC 22 VA 60 Hz or in Canada, an ICP-TR1822-CA Plug-in Transformer 120 VAC primary, 18 VAC 22 VA secondary.	9 — Supervised sensor loops, points 1 to 8 (Initiating Device Circuits)
3 — To earth ground	10 — To ICP-EZTS Tamper Switch
4 — D122/D122L Dual Battery Harness, as required	11 — Programmable outputs
5 — Batteries (Unsupervised)	12 — External relay
6 — Audible signaling device	13 — USB connector
7 — UL Listed four-wire smoke detectors with EOL resistor	14 — RJ-45 modular jack for Ethernet (optional)

17.2 Battery lead supervision wiring

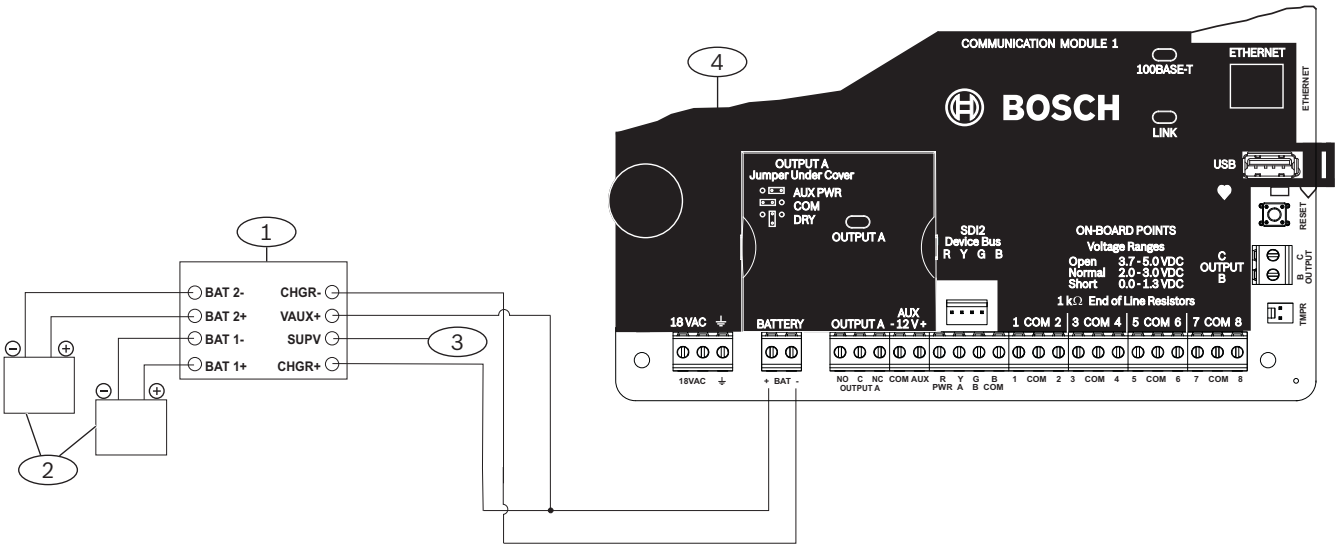


Figure 17.2: Battery lead supervision wiring (B5512 shown)

Callout — Description
1 — D113 Battery Lead Supervision Module, if required
2 — Batteries
3 — To supervision point
4 — Control panel

17.3 2-wire smoke wiring (B201)

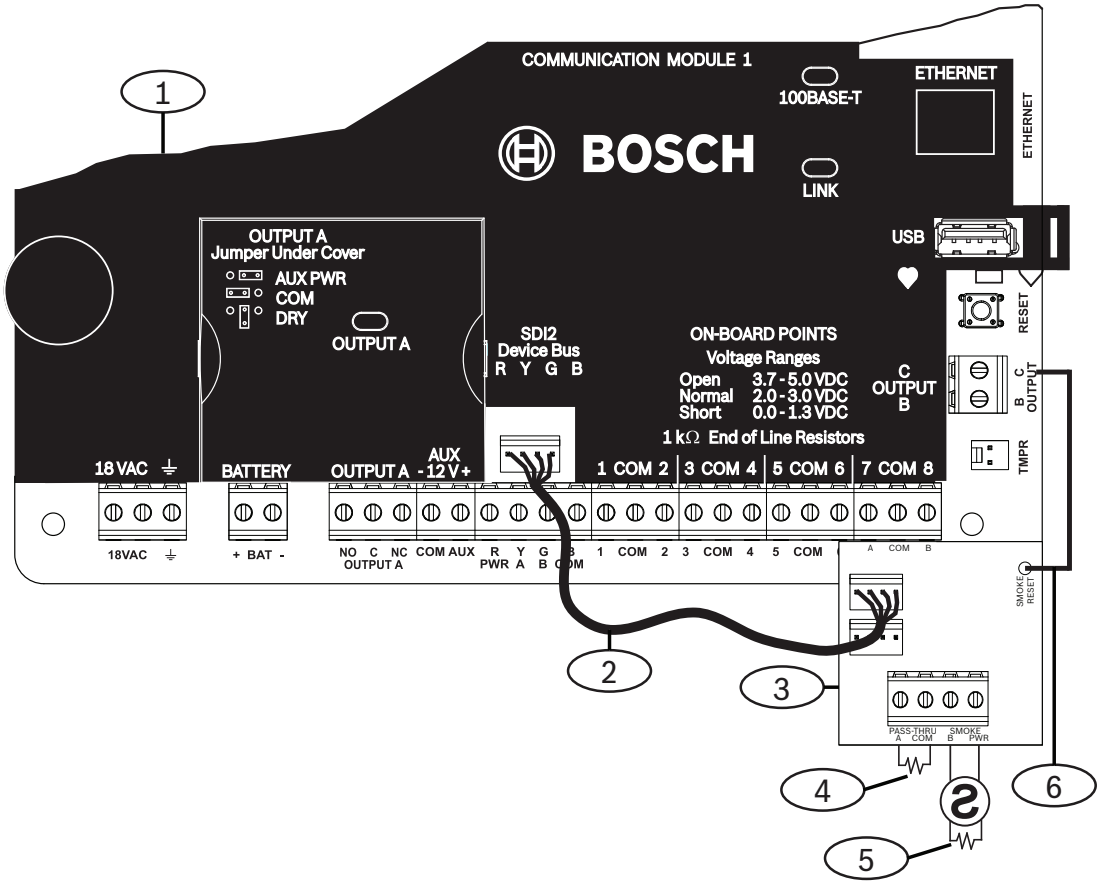


Figure 17.3: B201 to control panel wiring (B5512 shown)

Callout — Description
1 — Control panel
2 — Interconnect cable
3 — B201
4 — 1 kΩ EOL resistor (P/N: F01U026703) (included with the control panel)
5 — 1.8 kΩ EOL resistor (P/N: F01U009011) (included with the module)
6 — Smoke reset wire

17.4 2-wire smoke wiring (D125B)

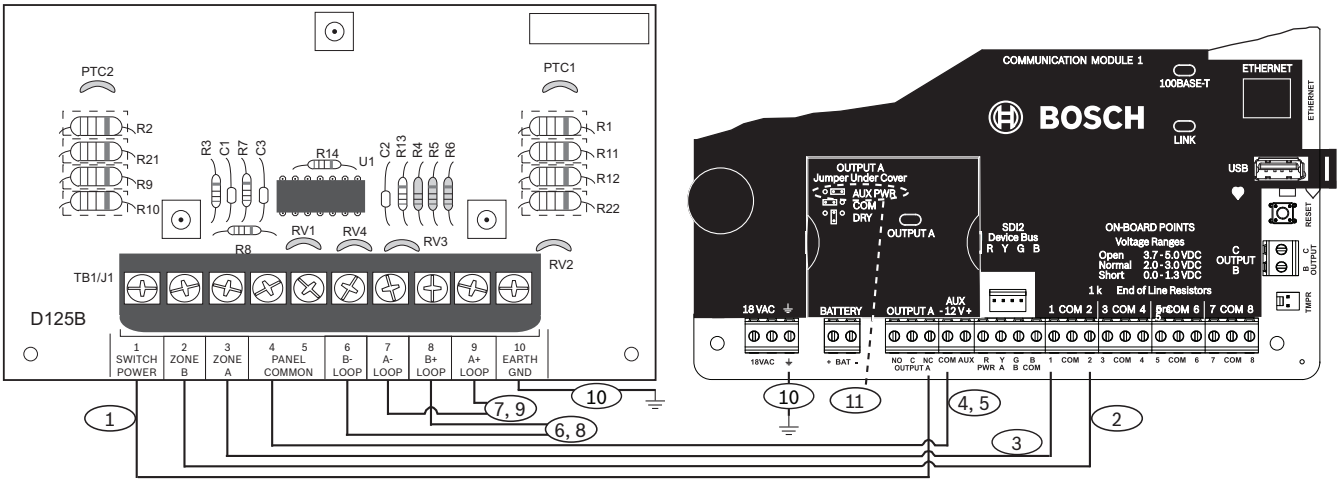


Figure 17.4: D125B to control panel wiring (B5512 shown)

Callout — Description	Callout — Description
1 — Switched auxiliary power from the control panel's Output A (NC)[1]	7 — Supervised smoke detector to A LOOP negative
2 —Connection from an on-board point on the control panel to Zone B	8 — Supervised smoke detector to B LOOP positive
3 — Connection from an on-board point on the control panel to Zone A	9 — Supervised smoke detector to A LOOP positive
4/5 — Connection to the control panel's common (one connection only)	10 — Earth ground
6 — Supervised smoke detector to B LOOP negative	11 — Output A jumper (under cover) set to AUX PWR
[1] You can also use Output B or C in conjunction with a D133 or D134 relay module.	

17.5 Notification appliance circuit wiring

The control panels do not have an onboard NAC.

Programming determines the format of the output and the conditions that activate it. One self-resetting circuit breaker protects against shorts. When using the relay to activate notification appliance circuits in UL Listed fire alarm applications, install a D192G Notification Appliance Circuit module.

Refer to the *D192G Notification Appliance Circuit Module Installation Guide* (P/N: 4998122260) for detailed wiring information and specifications.

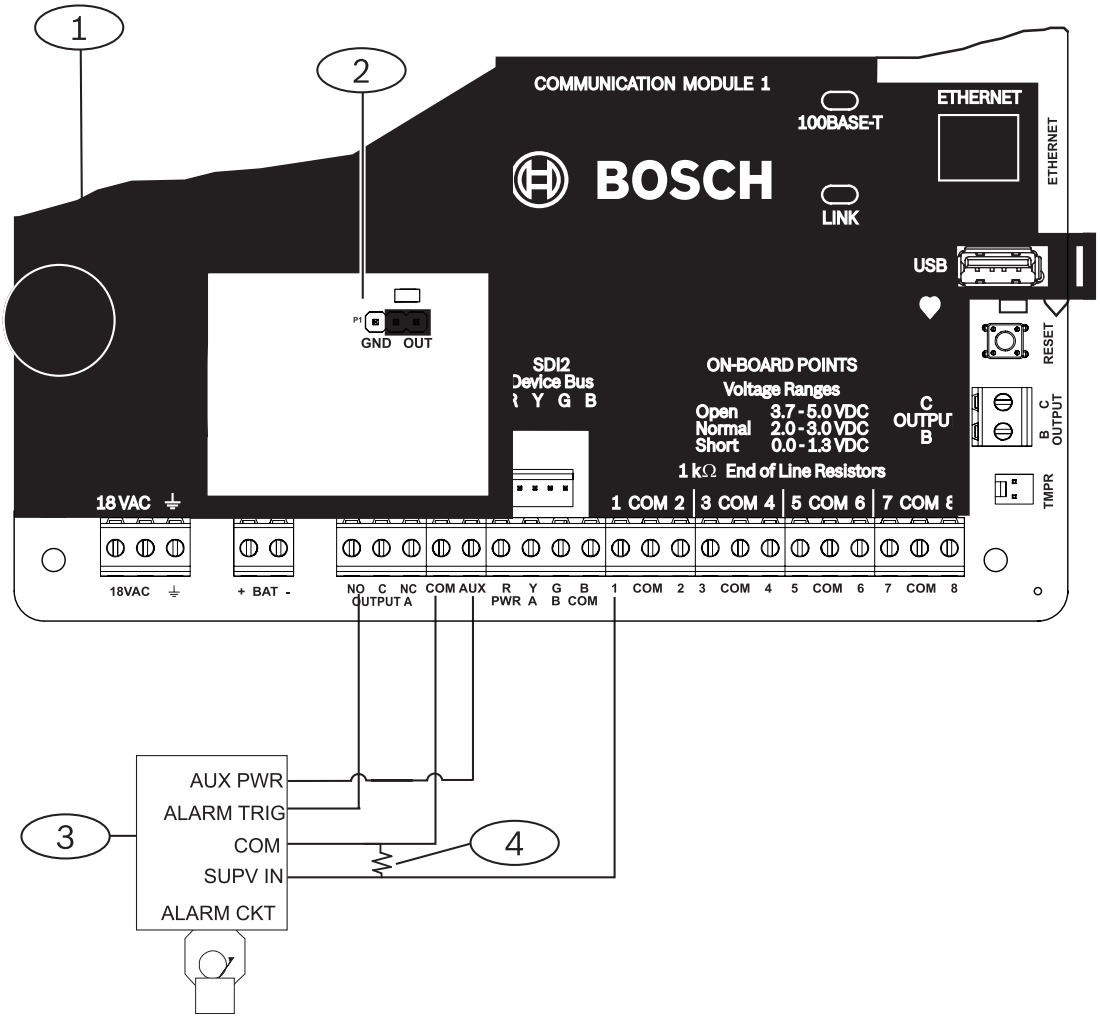


Figure 17.5: Notification appliance circuit wiring (B5512 shown)

Callout — Description
1 — Control panel
2 — Output jumper set to configure OUTPUT A terminal C for AUX POWER (jumper cover removed)
3 — D192G Notification Appliance Circuit module
4 — 1k Ω EOL resistor (P/N: F01U033966)

17.6 SDI2 devices general system wiring

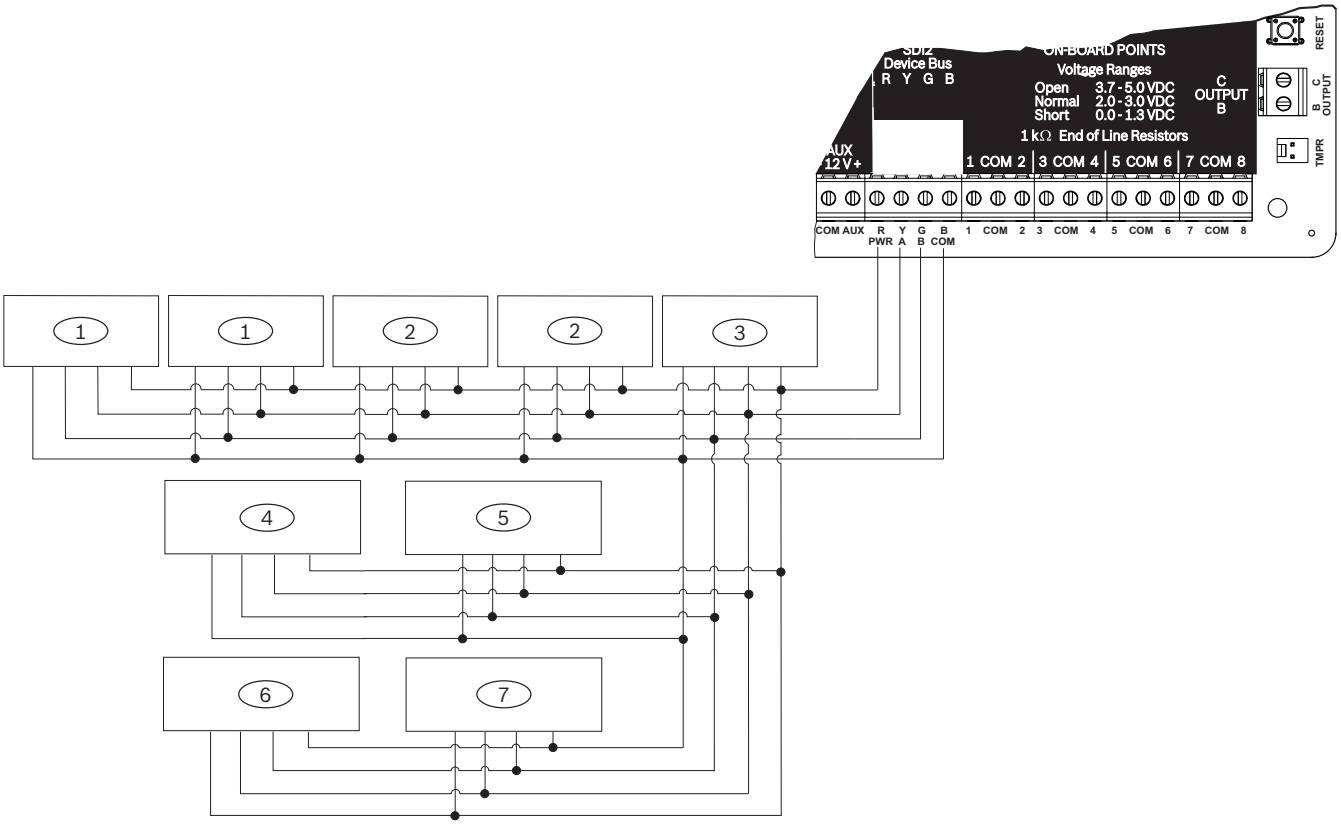


Figure 17.6: SDI2 devices system wiring (B5512 shown)

Callout — Description	B5512 Capacity	B4512 Capacity	B3512 Capacity
1 — B208 Octo-input Modules	4	2	0
2 — B308 Octo-output Modules	5	3	0
3 — B426 Conettix Ethernet Communication Modules	1	1	1
4 — B450 Conettix Plug-in Communicator Interfaces	1	1	1
5 — B520 Auxiliary Power Supply Modules	4	2	2
6 — B810 wireless receivers or B820 SDI2 Inovonics Interface Modules	1	1	1
7 — B Series keypads	8	8	4

Notice!
The SDI2 power terminal (R/PWR) is power limited. The SDI2 terminals are supervised.

17.6.1 SDI2 bus wiring recommendations

Use the following SDI2 bus wiring recommendations for SDI2 installation. The control panel and SDI2 modules use the SDI2 bus to communicate with one another.

You can configure modules via home run, daisy chain, or single level T-tap anywhere on the SDI2 bus.

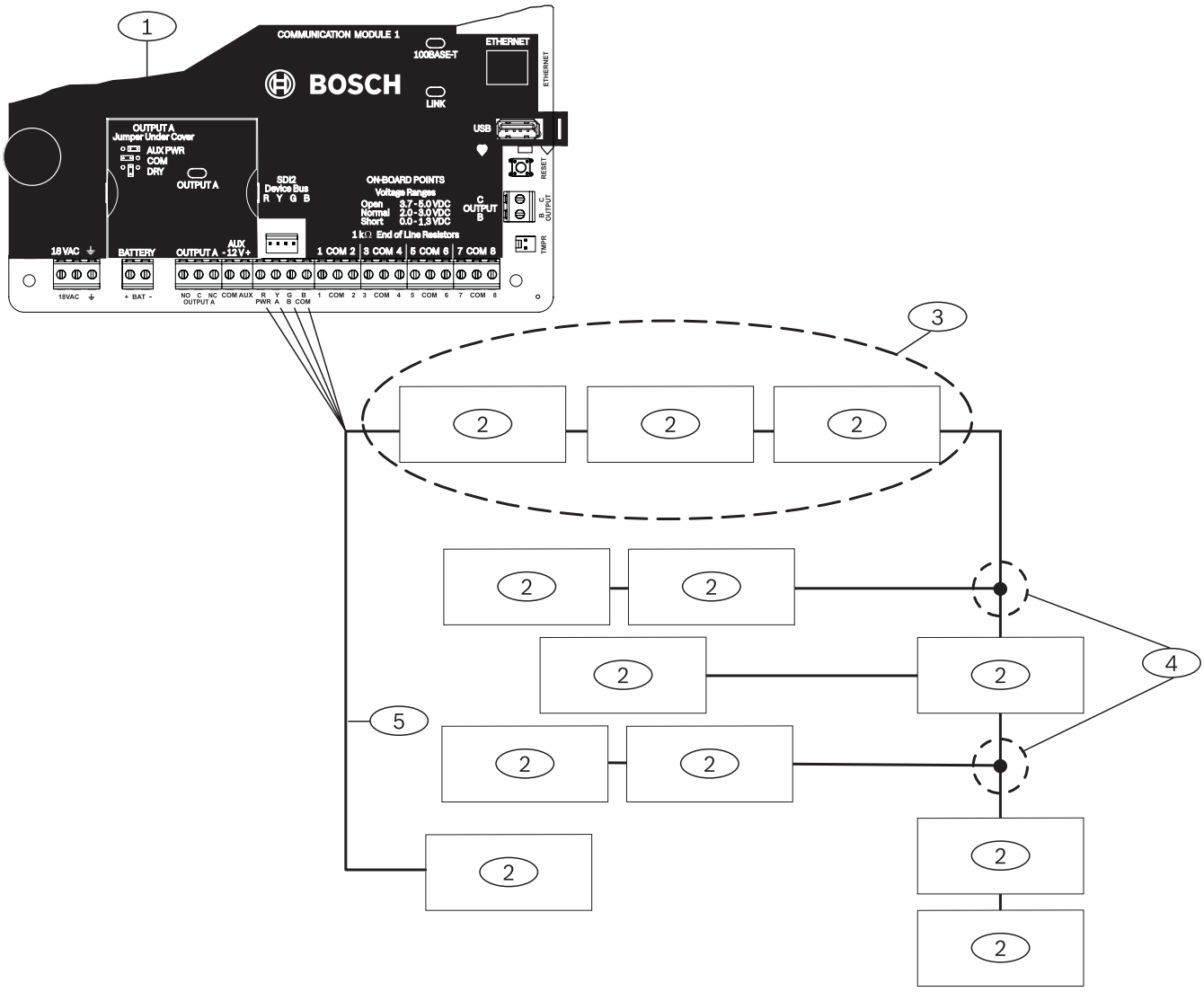


Figure 17.7: SDI2 bus wiring recommendations (B5512 shown)

Callout — Description
1 — Control panel
2 — SDI2 device (module or keypad)
3 — Daisy chain wiring
4 — Single-level T-tapped wiring
5 — Home run wiring

Notice!

There can only be a difference of 2 volts (maximum) between the AUX power terminals of the control panel or power supply and the device for the modules and keypads to work properly under all conditions.

Maximum cable lengths

The following rules must be followed when wiring the SDI2 bus.

– The SDI2 bus requires the use of **un-shielded** cable from 12 AWG to 22 AWG.
– SDI2 devices or keypads must be within 2000 ft (610 m) of the control panel.
– Maximum overall cable lengths are listed in the following table:

Cable capacitance	Overall cable length	Cable capacitance	Overall cable length	Cable capacitance	Overall cable length	Cable capacitance	Overall cable length
pF/ft	ft	pF/ft	ft	pF/ft	ft	pFf/ft	ft
< 17	7500	22	6363	27	5185	32	4400
18	7500	23	6086	28	5000	33	4242
19	7350	24	5800	29	4828	34	4100
20	7000	25	5600	30	4700	35	4000
21	6666	26	5385	31	4516	36	3800

Table 17.1: Maximum cable length

Notice!

Use unshielded cable only.

Maximum capacitance of 140nF (140,000 pF) per system. Contact the wire manufacturer for the capacitance ratings of the wire being used.

Example cable types

AWG	MFG/PN	Capacitance pF/ft	Resistance Ω/1000 ft	Max Run	NEC Type	Definition
22	Belden 5541	18	16.3	7500	CL3P, CL3R, CL3, CL3X, CL2P, CL2, CL2R, CL2X, CM	Class 2 and Class 3 remote control, communications, signaling and power limited cables
	Belden 1242	15	17.6	7500		
	Belden 5502	20	16.2	7000		
	Belden 5522	19	15.7	7350		
18	Belden 5302	22	6.5	6363		
	Belden 1242	15	17.6	7500		

AWG	MFG/PN	Capacitance pF/ft	Resistance Ω/1000 ft	Max Run	NEC Type	Definition
16	Belden HC2758	19.9	4.0	7000		
	Belden 5202	23.5	4.2	5800		
12	Belden 5002	32	1.56	4400		

Table 17.2: Maximum cable length

Notice!
Fire alarm applications require NEC cable type FPLR, FPLP, or FPL or the equivalent power limited fire alarm cables (refer to article 760 of the NFPA 70 code).

17.7 Wiring label

BOSCH
B5512/B4512/B3512

This equipment should be installed in accordance with the NFPA 70 (National Electrical Code), the NFPA 72 (National Fire Alarm Code), and the local authority having jurisdiction. Depending on the application, the installation is to be in accordance with one or more of the following UL standards:
UL681 Installation and Classification of Mercantile and Bank Burglar Alarm Systems;
UL1076 Proprietary Burglar Alarm Systems and Units; UL1641 Installation and
Classification of Residential Burglar Alarm Systems. Printed information describing proper installation, operation, testing, maintenance, repair service and response to an alarm is to be provided with this equipment.
Warning: Owner's Instruction Notice (P/N: F01U287181): Not to be removed by anyone except occupant.
Avertissement : guide de l'utilisateur (réf. : F01U287181) : seul l'occupant est autorisé à le retirer.

Bosch Security Systems, Inc. recommends testing the entire system at least once a week, and having a qualified technician check the system at a minimum of once every 3 years.

Minimum system requirements for Classification in accordance with ANSI/SIA CP-01-2010
UL Listed and Classified control unit Model B5512, B4512 or B3512;
UL Listed and Classified keypad Model B915, B920, B921C, B921CW, or B942
UL Listed Local Bell

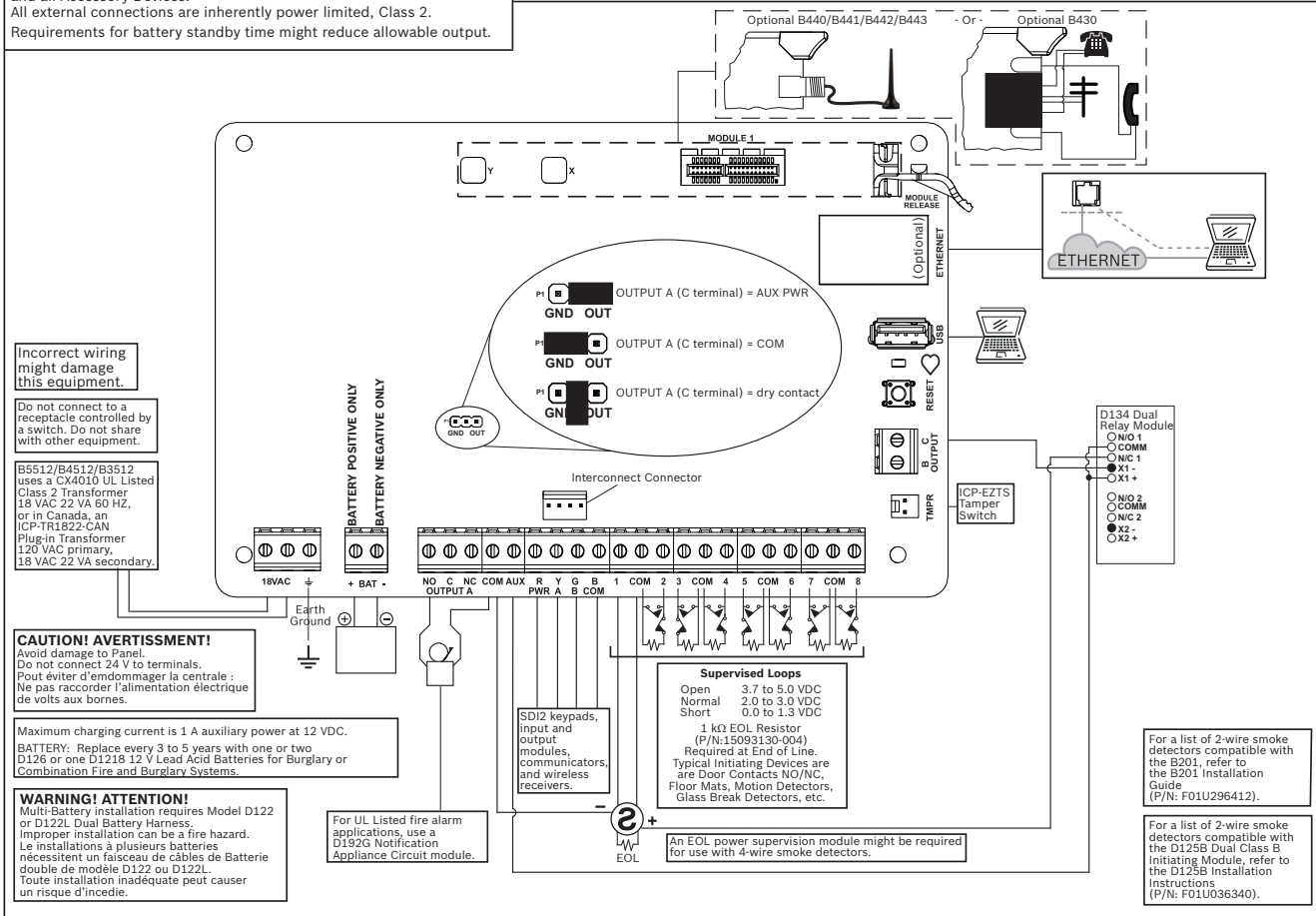
Suitable for the following applications: 1) Household Burglar Alarm System Units. 2) Household Fire Warning System Units. 3) Police Station connect, Mercantile Premise alarm system, Mercantile Safe and Vault alarm system. For all Police Station applications, Model D8108A Attack Resistant Enclosure with a UL Listed local sounding device is required. 4) Local, Mercantile Premise alarm system and Mercantile Safe and Vault alarm system. 5) Central Station, suitable as a dual signal line transmission system. 6) Proprietary Burg. 7) Holdup Alarm Units and System.

This equipment has been type tested and found to comply with the specifications in Part 15 of FCC rules for Class B Computing Devices. Operation is subject to the two following conditions (1) this device may not cause any interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

POWER SUPPLY REQUIREMENTS
The Power Supply provides a maximum of 800 mA for the Control Panel and all Accessory Devices.
All external connections are inherently power limited, Class 2.
Requirements for battery standby time might reduce allowable output.

Model number B430 complies with Part 68, FCC Rules. FCC Registration Number: ESVAL00BB430 Ringer Eq 0.0B

Model number B430 complies with CS-03, IC Rules, IC: 1249A-B430



WARNING

THIS UNIT INCLUDES AN ALARM VERIFICATION FEATURE THAT WILL RESULT IN A DELAY OF THE SYSTEM ALARM SIGNAL FROM THE INDICATED CIRCUITS. THE TOTAL DELAY (CONTROL PANEL PLUS SMOKE DETECTORS) SHALL NOT EXCEED 60 SECONDS.
NO OTHER SMOKE DETECTOR SHALL BE CONNECTED TO THESE CIRCUITS UNLESS APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION.

ATTENTION!

CETTE UNITÉ COMPREND UNE FONCTIONNALITÉ DE VÉRIFICATION DES ALARMES QUI CONDUIT À UN RETARD DU SIGNAL D'ALARME DU SYSTÈME PROVENANT DES CIRCUITS INDIQUÉS. LA RETARD TOTAL (CENTRALE + DÉTECTEURS DE FUMÉE) NE DOIT PAS DÉPASSER 60 SECONDES. NE CONNECTER AUCUN AUTRE DÉTECTEUR DE FUMÉE À CES CIRCUITS, SAUF SI CELA EST PERMIS PAR LES RÉGLEMENTATIONS LOCALES EN VIGUEUR

* Circuit (point)	Control panel delay, seconds	Smoke detector	
		Model	Delay, seconds

Include detector data or the following or equivalent statement: "Use the delay (power-up/start-up) time marked on the installation wiring diagram of the smoke detector or on the installed smoke detector(s)."

Auxilliary Powered Devices 11.5 to 12.4 VDC. Below 10.2 VDC, the B5512/B4512/B3512 stops processing Loop inputs.

This equipment should be installed in accordance with the CSA C22.1, Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.

B5512_B4512_B3512_ULLD-03

Communication:
Standard Line Security: Cellular or IP
A1: Cellular or IP
P1: DACT

F01U287186-06

18 Approved applications

The UL System Chart references the components that are evaluated and listed by UL for compatibility with B5512/B4512/B3512 control panels. These components meet the basic system requirements for the applicable standard.
Refer to *Compatible UL listed components, page 97*.
The system wiring diagrams show the relationship between the control panel and the accessory components.
Refer to *System wiring diagrams, page 80*.

18.1 Optional compatible equipment

You can use UL Listed components not requiring evaluation for electrical compatibility in many applications when installed according to the manufacturer's instructions.

18.1.1 Burglar applications

You can use UL Listed components not requiring evaluation for electrical compatibility in burglary applications. In some cases, you must use a UL Listed interface module with the sensors. Consult the individual component specification and installation documents to determine suitability.

18.1.2 Bank Safe and Vault applications

You must use the UL Listed Model 5110 Bell and Model 4001-42 External Line Balancer (both made by Rothenbuhler) for the bell and balanced line module in bank safe and vault applications. Modify the D8108A Attack-Resistant Enclosure to meet UL Standard 681.
Refer to Wiring Information for installations using the Rothenbuhler 5110/4001-42 High Security Bell for wiring instructions and diagrams.

Control panel enclosure requirements

UL Standard 681 for Installation and Classification of Mercantile and Bank Burglary Alarm Systems requires foil lining or equivalent protection of the control unit enclosure. The D8108A Attack-Resistant Enclosure does not have a foil lining, but acceptable protection is provided by mounting electronic vibration sensors inside the enclosure.

Notice!

Do not use proximity alarms (capacitance) to protect the control panel enclosure.

- Install the same electronic vibration sensors in the D8108A that are used to protect the safe or vault.
- Mount the Sentrol 5402, Potter EVD-S, or Arrowhead S-3810 electronic vibration detection (EVD) system inside the D8108A to meet the UL 681 requirements.
- Install and test the EVD sensor according to the manufacturer's instructions.
- Mount the EVD sensor directly inside the metal cabinet of the D8108A.

Caution!

Do not install the EVD sensor within 6.4 mm (0.25 in) of the components or traces of the printed circuit assembly.

Battery connections

- Using a D122 Dual Battery Harness, connect two 12 V 7 Ah batteries in the control panel enclosure.

– Use a separate D8108A for the two 12 V 7 Ah batteries. When using a D122L Dual Battery Harness, wire the batteries in parallel and connect the harness to the BAT+ and BAT- terminals of the control panel.

Bell requirements

Use the following Rothenbuhler bell and balanced line modules with the control panel:

– UL Listed Model 5110 Bell
– UL Listed Model 4001-42 External Line Balancer

Wiring Information for installations using the Rothenbuhler 5110/4001-42 High Security Bell

Refer to the following two figures for wiring information.

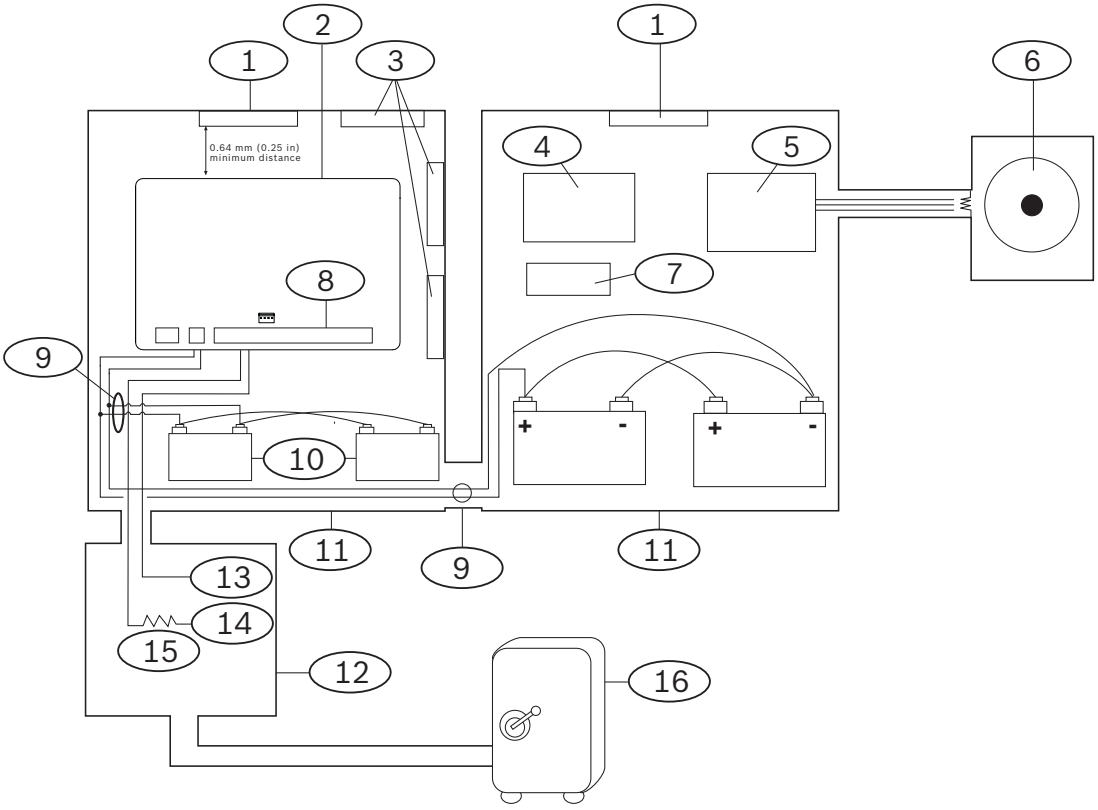


Figure 18.1: Rothenbuhler 5110 4001-42 High Security Bell to control panel wiring

Callout — Description	Callout — Description
1 — Self-contained UL listed vibration sensor	9 — D122/D122L Dual Battery Harness[2]
2 — Control panel	10 — D126 Battery
3 — Accessory modules	11 — D8108A Enclosure
4 — High line security module)	12 — Proximity/control unit
5 — 4001-42 Balanced Line Module	13 — Normally open (NO)
6 — 5110 bell	14 — Normally closed (NC)
7 — D133 Relay	15 — End-of-line (EOL) resistor

Callout — Description	Callout — Description
8 — Alarm input point[1]	16 — Safe
[1] Use Terminals 1 through 8. (Select only one.) [2] Use a D113 Battery Lead Supervision Module to supervise the battery connections.	

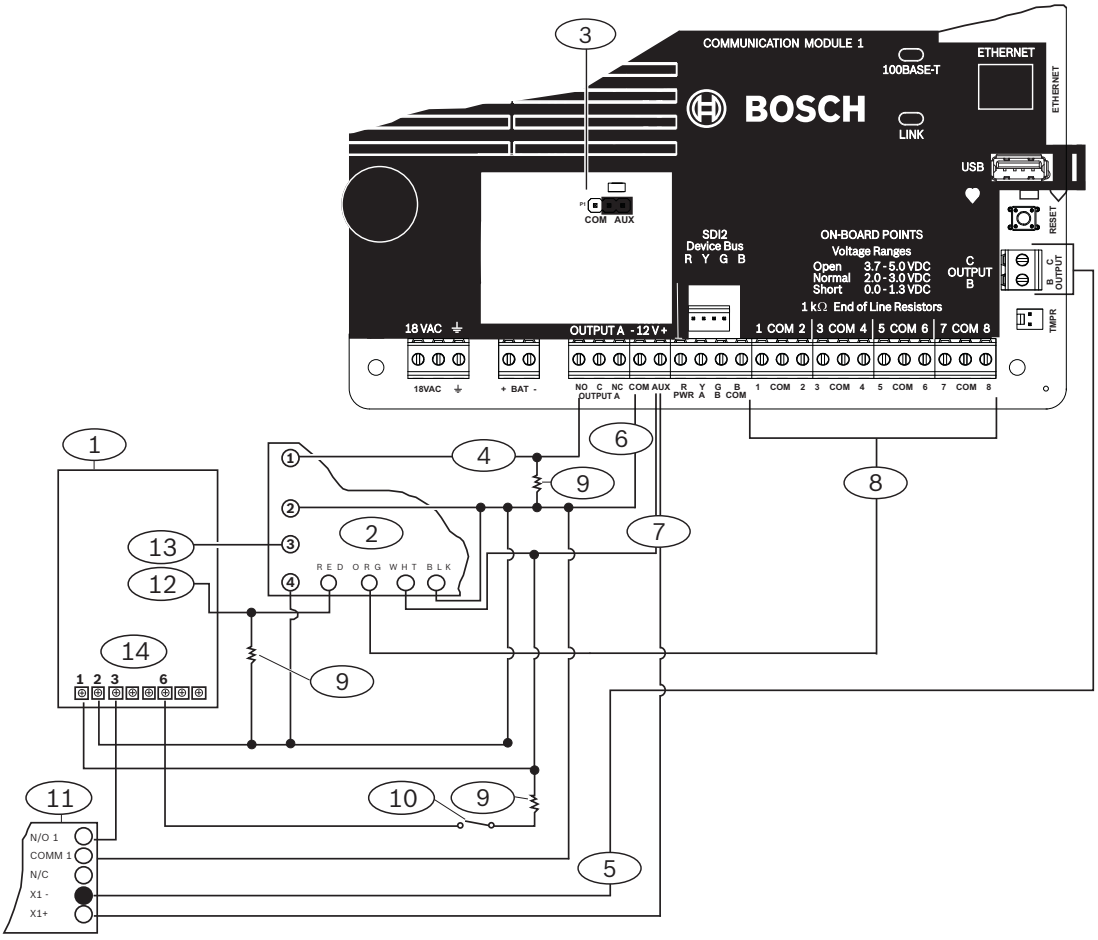


Figure 18.2: Detailed Rothenbuhler 5110_4001-42 High Security Bell to control panel wiring (B5512 shown)

Callout — Description	Callout — Description
1 — 5110 Logic Board	8 — Alarm input point*
2 — 4001-42 External Line Balancing Module	9 — 10 kΩ resistor
3 — Control panel set to OUTPUT A using AUX PWR	10 — Optional silence switch
4 — Alarm output	11 — D133 Relay Module
5 — Alternate alarm (use B or C)	12 — BBL In 4
6 — Common	13 — BBL Out 5
7 — +12.0 VDC	14 — Terminal TB1
* Use Terminals 1 through 8. (Select only one.)	

Notice!
Bell Test at Arming: UL Standard 365 requires a Bell Test at arming for bank safe and vault applications.

System configuration requirements

The following configuration and programming options are required for UL Bank Safe and Vault Systems. Refer to *RPS Help* or the control panel's *Program Entry Guide* for programming information.

Safe and Vault protective circuits

To test the devices that protect the safe(s) or vault(s) without sounding the bell, specify the devices' points as controlled zones and supervised for trouble conditions. Refer to *Point Index* in *RPS Help* or the control panel's *Program Entry Guide* more information.

Bell configuration

- UL 365 requires a bell time of 15 to 30 min. The Rothenbuhler 5110 Bell provides selectable bell time through manipulation of its jumpers. Refer to the manufacturer's installation instructions for more information.
- In addition to the jumper settings inside the bell, you can activate the control panel for a bell time of 15 min.
- UL 365 requires a Bell Test at arming and you must enable it in control panel programming.
- Refer to *Bell Parameters* in *RPS Help* or the control panel's *Program Entry Guide* for more bell time and test programming information.

Bell test

- To enable the bell test feature, you enable an unused area of the control panel. Enable the bell test feature for the unused area only. Program OUTPUT B as the area bell output for the unused area.
- Make all passcodes with authority to arm the safe or vault and also send a Closing Report valid in this area. Program the area for a five-second exit delay.
- To complete the installation for this feature, connect the output to a D134 Dual Relay Module.

Exit delay

Do not program the control panel's maximum exit delay longer than 30 seconds.

18.1.3 Fire applications

You can use UL Listed fire initiating devices not requiring electrical compatibility evaluation in any application. For example, the four-wire smoke detectors, heat detectors, waterflow switches, and manual pull stations are suitable fire initiating devices. Consult the individual component specification and installation documents to determine suitability.

Notice!

UL requires that the control panel supervises any device powered from a power output.

Notice!

The control panel does not support multiple detectors in alarm. The control panel is compatible with detectors with optional features. Do not mix detectors from different manufacturers on the same circuit.

Four-wire smoke detectors

When using four-wire smoke detectors, install a power supervision device according to the manufacturer's instructions. You can connect any number of four-wire smoke detectors to the control panel (subject to available auxiliary power).

The Reset Sensor command is available from the keypads when the Reset Sensor is enabled. Connect the smoke detectors to a suitable interface such as the B208 Octo-input Module or on-board point to meet UL and NFPA requirements.

Notification Appliance Circuit (NAC)
Refer to *Notification appliance circuit wiring, page 84*.

Notice!
Test Weekly: Perform a Fire Test weekly.

Further information
- *Standby battery calculations, page 98*
- *Household Fire Warning equipment, page 101*

18.1.4 Enclosures

Mount the control panel assembly in any of the Bosch Security Systems, Inc. enclosures listed:
- B10 Medium Control Panel Enclosure
- B11 Small Control Panel Enclosure
- D2203 Enclosure
- D8103 Universal Enclosure*
- D8109 Fire Enclosure (red)*
- D8108A Attack Resistant Enclosure*

*Requires a B12 mounting bracket.

B10, B11, D2203, and D8103 enclosures
The B10, B11, D2203, and D8103 enclosures are suitable for residential fire and burglary installations and commercial burglary applications that do not require attack resistance or the approval by Factory Mutual (FM) or New York City – Materials and Equipment Acceptance (NYC-MEA). Refer to *Compatible UL listed components, page 97* for acceptable applications.

D8108A Enclosure
The D8108A is attack resistant and intended primarily for UL commercial burglar alarm and mercantile safe and vault applications requiring a local bell. Use this enclosure in any burglar or fire alarm application where the D8109 Enclosure is suitable.
The D8108A, with some modification, can be used for bank safe and vault applications. UL lists the D8108A for all commercial fire alarm applications. It is approved by FM, CSFM, and the NYC-MEA.

D8109 Red Fire Enclosure
Generally, the D8109 is used for fire alarm applications. It is approved by FM, CSFM, and the NYC-MEA.

B12 Mounting Plate for D8103 Enclosure
The mounting plate is compatible with the D8103, D8108A, and D8109 Enclosures.

18.2 Combination fire and intrusion alarm systems

A system can include a combination of fire and intrusion devices on any bus or module.

18.3 Compatible UL listed components

	Household Burglary	Household Fire	Household Fire/ Burglary Combined	Central Station Burglary/ Proprietary	Police Connected Burglary	Local Burglary	Holdup
Minimum Hours of Standby Battery	4	24 + 4 min alarm		4	4	4	8
B10 Medium Control Panel Enclosure	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
B11 Small Control Panel Enclosure	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
B201 2-wire Powered Loop Module	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
B208 Octo-input Module	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
B308 Octo-output Module	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
B426 Conettix Ethernet Communication Module	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
B430 Plug-in Telephone Communicator	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
B440 Conettix Plug-in Cellular Communicator	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
B441 Conettix Plug-in CDMA Cellular Communicator	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
B442 Plug-in GPRS Cellular Communicator	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
B443 Plug-in HSPA+ Cellular Communicator	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
B450 Conettix Plug-in Communicator Interface	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
B520 Auxiliary Power Supply Module	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
B810 RADION receiver SD	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
B820 SDI2 Inovonics Interface Module	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
B915 Basic Keypad	1+	1+	1+	1+	1+	1+	Opt.
B920 Two-line Alphanumeric Keypad (SDI2)	1+	1+	1+	1+	1+	1+	Opt.

B921C/B921CW Two-line Capacitive Keypad	1+	1+	1+	1+	1+	1+	Opt.
B930 keypads	1+	1+	1+	1+	1+	1+	Opt.
B942/B942W Touch Screen Keypad	1+	1+	1+	1+	1+	1+	Opt.
CX4010 Plug-in Transformer (18 VAC 22 VA 60 Hz)	Required for all applications.						Opt.
D125B Dual Class B Initiating Module	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
D126 Standby Battery (12 V, 7 Ah)	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
D130 Auxiliary Relay Module	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
D133 Single Relay Module	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
D134 Dual Relay Module	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
D1218 Battery (12 V, 18 Ah)	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
D192G Class “B”, Style Y Bell Circuit Supervision	Opt.	Req.	Opt.	Opt.	Opt.	Opt.	Opt.
D8004 Transformer Enclosure	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
D8108A Attack Resistant Enclosure or D8109 Fire Enclosure	Opt.	Opt.	Opt.	Opt.	No	Opt.	Opt.
D8108A Attack Resistant Enclosure[1]	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.

Key	
No	Not acceptable for this application.
Req.	Required for this application.
Opt .	Optional for this application.
1+	1 or more required for this application. Consult the appropriate standard.

[1] For commercial applications using the B430, and when doing local or police station connect applications, the D8108A Enclosure is required for all applications.
* Not investigated by UL.

18.4 Standby battery requirements and calculations

Standby battery calculations

UL 365 requires 72 hr of standby battery capacity. Limit the auxiliary power current for all devices, including keypads, to 80 mA or less to meet this requirement.

		A	**B**	**C**
		AC Power On Normal Current (mA)	AC Power Off Minimum Current (mA)	In Alarm Maximum Current (mA)

Model Number	Qty Used	Each Unit	Qty	Total	Each Unit	Qty	Total	Each Unit	Qty	Total
B5512/B4512/ B3512	_____	125	x 1	= 125	125	x 1	= 125	155	x 1	= 155
B201	_____	18	x Qty	= _____	18	x Qty	= _____	35	x Qty	= _____
B208	_____	35	x Qty	= _____	35	x Qty	= _____	35	x Qty	= _____
B308[1]	_____	22	x Qty	= _____	22	x Qty	= _____	22	x Qty	= _____
B426	_____	100	x Qty	= _____	100	x Qty	= _____	100	x Qty	= _____
B430	_____	5	x 1	= _____	5	x Qty	= _____	25	x 1	= _____
B440	_____	35	x 1	= _____	35	x 1	= 35	150	x 1	= _____
B441	_____	35	x 1	= _____	35	x 1	= 35	150	x 1	= _____
B442	_____	35	x 1	= _____	35	x 1	= 35	150	x 1	= _____
B443	_____	35	x 1	= _____	35	x 1	= 35	150	x 1	= _____
B450[2]	_____	30	x Qty	= _____	30	x Qty	= _____	30	x Qty	= _____
B520	_____	15	x Qty	= _____	15	x Qty	= _____	15	x Qty	= _____
B810	_____	100	x Qty	= _____	100	x Qty	= _____	100	x Qty	= _____
B820	_____	100	x Qty	= _____	100	x Qty	= _____	110	x Qty	= _____
B915	_____	35	x Qty	= _____	35	x Qty	= _____	70	x Qty	= _____
B920	_____	35	x Qty	= _____	35	x Qty	= _____	70	x Qty	= _____
B921C	_____	45	x Qty	= _____	45	x Qty	= _____	85	x Qty	= _____
B930	_____	35	x Qty	= _____	35	x Qty	= _____	80	x Qty	= _____
B942[3]	_____	200	x Qty	= _____	200	x Qty	= _____	300	x Qty	= _____
D125B	_____	25	x Qty	= _____	25	x Qty	= _____	168	x Qty	= _____
D127	_____	5	x Qty	= _____	5	x Qty	= _____	55	x Qty	= _____
D129	_____	23	x Qty	= _____	23	x Qty	= _____	25	x Qty	= _____
D132A	_____	10	x Qty	= _____	10	x Qty	= _____	70	x Qty	= _____
D133[4]	_____		x Qty	= _____		x Qty	= _____		x Qty	= _____
D134[5]	_____		x Qty	= _____		x Qty	= _____		x Qty	= _____
D185	_____	245	x Qty	= _____	245	x Qty	= _____	300	x Qty	= _____
D192G	_____	35	x Qty	= _____	35	x Qty	= _____	100	x Qty	= _____
Ratings of other devices in the system that are not shown above:										
___	_____	____	x Qty	= _____	_____	x Qty	= _____	___	x Qty	= _____
___	_____	____	x Qty	= _____	_____	x Qty	= _____	___	x Qty	= _____
___	_____	____	x Qty	= _____	_____	x Qty	= _____	___	x Qty	= _____
___	_____	____	x Qty	= _____	_____	x Qty	= _____	___	x Qty	= _____

			Total A = _____		Total B = _____		Total C = _____

[1] The In Alarm calculation for the B308 is: 20 x Qty + (16.25 x number of relays).
[2] Currents listed are for the B450 only. Include plug-in device currents in calculations.
[3] If using the proximity reader, add 100 mA to columns A, B, and C before calculating.
[4] 38 mA for each active relay.
[5] Value = Minutes of alarm operation/60

Table 18.1: Current rating chart for standby battery calculations

Total B[1]		Hours		Total C[1]		Alarm Operation[2]		Contingency		Total Ah[3]
(_____	x	24)	+	(_____	x	0.083)	+	15%	=	_____

[1] Refer to previous table.
[2] Value = Minutes of alarm operation/60
[3] Total Ah requirements must not exceed the Ah capacity of batteries:
– One D126 Battery = 7 Ah
– Two D126 Batteries = 14 Ah
– One D1218 Battery = 18 Ah

Table 18.2: General ampere-hour (Ah) calculation formula

Application	**Minimum Required Standby Time (hr)**	**Minimum Alarm Time (min)**
Residential Burglary	4	4
Proprietary Burglary	4	N/A
Central Station (Bank)	72	N/A
Central Station (Mercantile)	4	N/A
Police Station Connected (Bank)	72	30 (CUL)/15 (UL)
Police Station Connected (Mercantile)	24	30 (CUL)/15 (UL)
Local Burglary (Bank)	72	30 (CUL)/15 (UL)
Local Burglary (Mercantile)	24	30 (CUL)/15 (UL)
Holdup	8	N/A
Residential Fire	24	5 (CUL)/4 (UL)

Table 18.3: Minimum standby and alarm times

Type	**Required capacity**	**Calculations**
Household Burglary and Commercial Burglary	4 h	
Bank Safe and Vault	72 h (UL 365). Auxiliary power current for all devices, including keypads, must be limited to 80 mA or less to meet this requirement.	

Table 18.4: Standby battery requirements

Notice!
Because of changing regulations, verify the necessary time with your local authority having jurisdiction (AHJ).

18.4.1 Household Fire Warning equipment

The Household Fire Warning Equipment Standard requires 24 h of standby current plus 4 min of alarm operation at the end of the 24-hour period. Use battery Ah calculations to confirm compliance. The formula shown below includes the calculation for 4 min of alarm operation at the end of the 24-hour period, and a 15% contingency factor that allows for depletion of battery capacity with age.

Notice!
Because of changing regulations, verify the necessary time with your local authority having jurisdiction (AHJ).

Total B[1]		Hours		Total C[1]		Alarm Operation[2]		Contingency		Total Ah[3]
(_____	x	24)	+	(_____	x	0.083)	+	15%	=	_____

[1] Refer to previous table.

[2] Value = Minutes of alarm operation/60

[3] Total Ah requirements must not exceed the Ah capacity of batteries:

– One D126 Battery = 7 Ah

– Two D126 Batteries = 14 Ah

– One D1218 Battery = 17.2 or 18 Ah

Table 18.5: Household fire ampere-hour (Ah) calculation formula

18.5 UL 365 - Police Station Connected Burglar Alarm Units and Systems

In a mercantile burglar alarm system, a mercantile alarm sounding device located within a building but outside the protected area, is acceptable, provided it is rated for outside service and alarm conditions are transmitted to:

– The dispatch location of the law enforcement agency having jurisdiction over the protected property

or

– A central station or residential monitoring station complying with the Standard for Central-Station Alarm Services, UL 827.

In a mercantile burglar alarm system, an alarm sounding device located within the area of greatest protection, or outside the area of greatest protection but within an area protected by an alarm system and that shares a common control unit with the system installed in the area of greatest protection, is acceptable provided it is rated for inside service and alarm conditions are transmitted to:

– The dispatch location of the law enforcement agency having jurisdiction over the protected property

or

– A central station or residential monitoring station complying with the Standard for Central-Station Alarm Services, UL 827.

An inside sounding device shall be mounted at least 10 feet (3.05 m) above the floor or at the surface of the ceiling. When there is a fixed construction within the area that could provide access for an intruder, the alarm sounding device shall also be mounted at least 4 ft (1.2 m) as measured horizontally, away from the edges of the fixed construction or at least 10 ft (3.05 m) above it so as to minimize access by an intruder.

18.6 UL 636 - Holdup Alarm Units and System

Refer to *Required Programming to meet UL636* in *RPS Help* or the control panel's *Program Entry Guide*.

18.7 ULC

Conduct testing monthly, with the primary de-energized.

19 Keypad Installer menu

In addition to using RPS to configure and diagnose a system, you can also perform programming and diagnostics using a keypad. Programming and diagnostics options appear on the keypad when you access the Main menu (Installer) option, which includes the Installer menu. The Main menu (Installer) option becomes available during normal control panel operation only when you enter your installer passcode and press [ENTER]. The default Installer passcode is 1-2-3.

The tools within the Installer menu are:

- Program menu. Program several parameters to make your system operational, including phone number and format, enhanced communication options, RPS parameters, users, points, and keypad parameters. Refer to *[1] Program menu, page 109*. For more detailed information on each programming option, and to *RPS Help* or the control panel's *Program Entry Guide*.
- Wireless menu. Add, replace, remove, and diagnose points and repeaters. Refer to *[2] Wireless menu, page 135*.
- Diags menu. Diagnose point, repeaters, cellular service, and IP cameras. Refer to *[3] Diags menu, page 140*.
- Service Bypass menu. View whether points have been removed from service. Refer to *[4] Serv Byp (Service Bypass) menu, page 143*.
- Versions menu. View the version information for the control panel, encryption, and more. Refer to *[5] Versions menu, page 143*.

Installer keypads and SERVICE MODE

The Installer menu is also available from the Service menu when in SERVICE MODE. The Service menu is a subset of the Main menu (Installer) option. You can use Service mode at any keypad, but the feature is most useful when you wish to directly connect an Installer keypad to the control panel for keypad programming at the control panel. Set the Installer keypad to address 0, and then connect it to the control panel.

Use the control panel RESET button to enter SERVICE MODE. The rate of flashing of the Heartbeat LED increases while in SERVICE MODE.

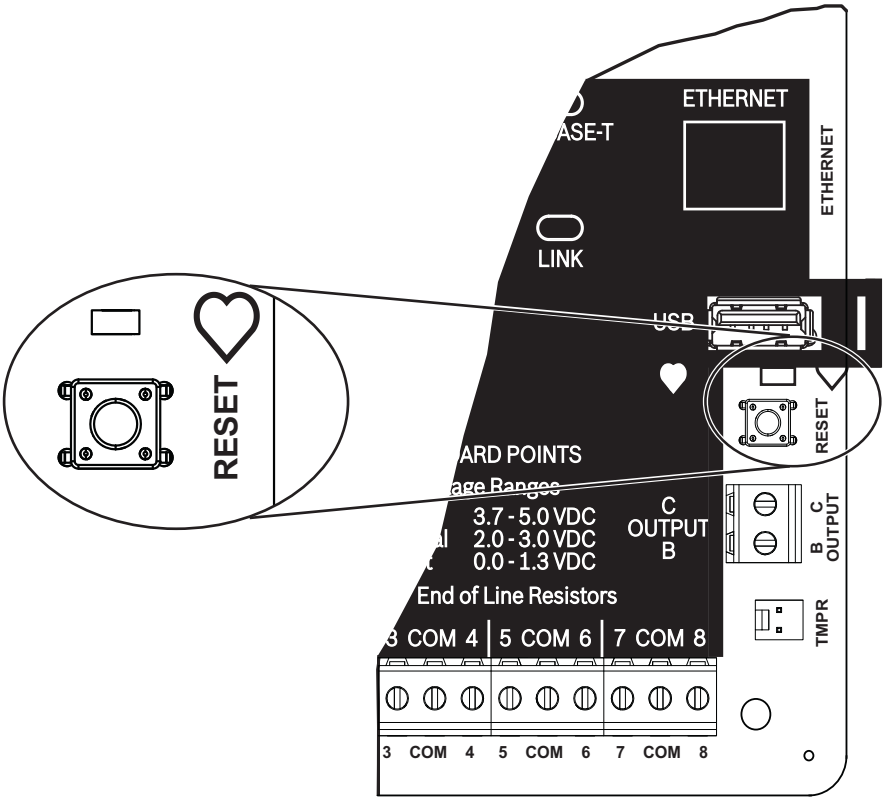


Figure 19.1: RESET button and Heartbeat LED location (B5512 shown)

Accessing SERVICE MODE (rapid pulsing Heartbeat LED):

1. Press and hold the control panel RESET button until the Heartbeat LED flashes fast. The keypad shows SERVICE MODE and prompts for the installer passcode.
2. Enter your installer passcode and press [ENTER].

Exiting SERVICE MODE and return to normal operation (slow pulsing Heartbeat LED):
Press and hold the control panel RESET button for approximately 5 sec until the Heartbeat LED turns off. The control panel resets.

Conventions for this section

This guide to the keypad Installer menu provides instructions for using the keypad, based on the following conventions:

- All instructions access the Installer menu from the Main menu (Installer) option, not while in Service mode.
- This section covers all compatible keypads. It provides specific steps for each keypad style.
- Keys to press appear in this manual in brackets [ ].
- For simplicity, the keypad Installer menu tree and instructions combine the two-line keypad number selections with the text and graphic steps of other keypads. For example, rather than indicating that the two-line keypad reads *Press [2] for enhanced comm parameters*, and that a different keypad reads *Enhanced Comm Parms*, this section indicates the selection as *[2] Enhanced Comm Parms*.
- For simplicity and readability of instructions, this section lists menu steps in succession with the > character separating steps. For example, Go to [1] Program > [1] Reporting > [2] Network > [2] Enhanced Comm Parms.

Keypad menu trees

This section includes menu trees for the Installer menu structure, and the structures of the B91x/B92x and B93x/B94x keypads user menus, for reference.

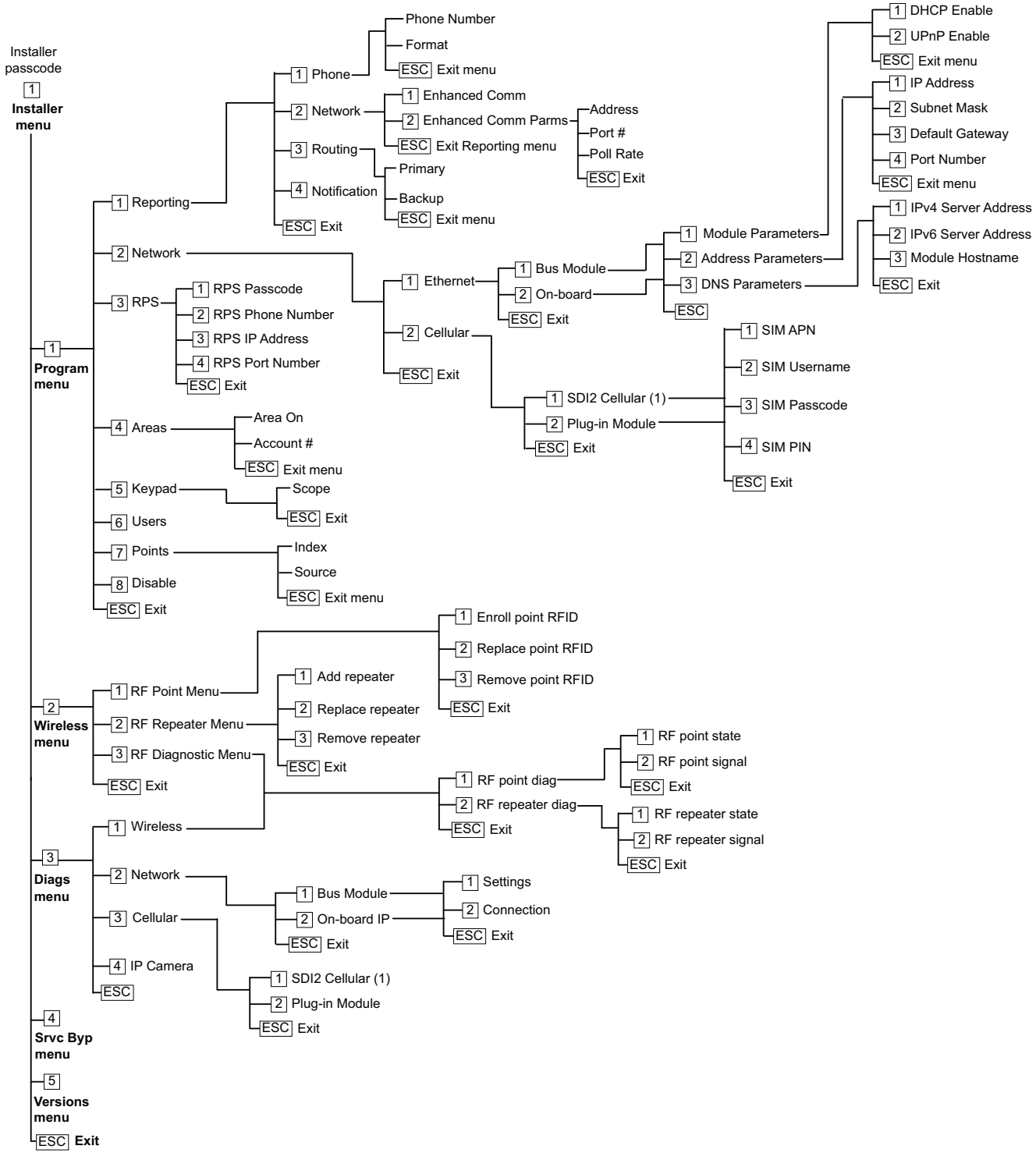


Figure 19.2: Keypad Installer menu tree

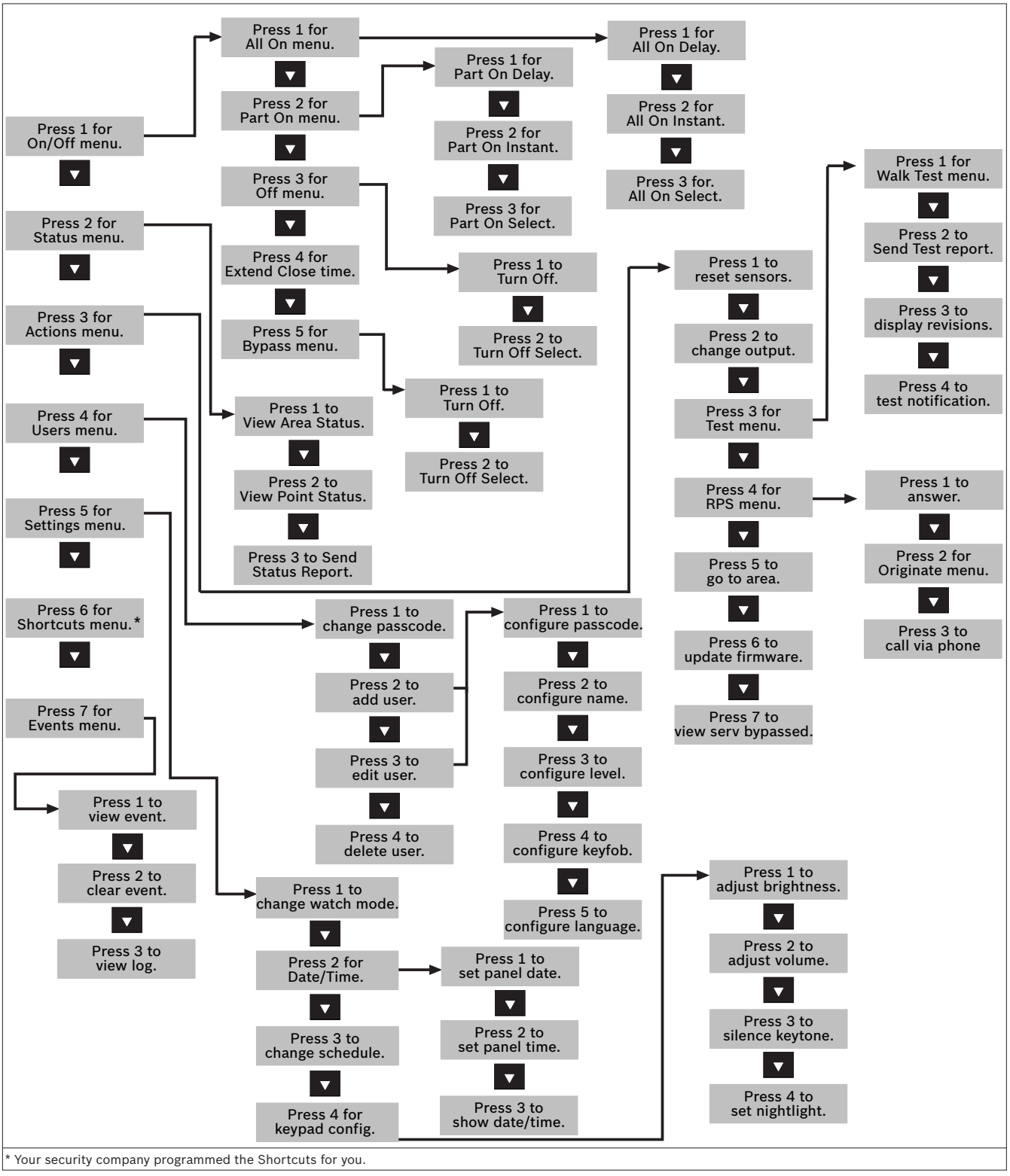
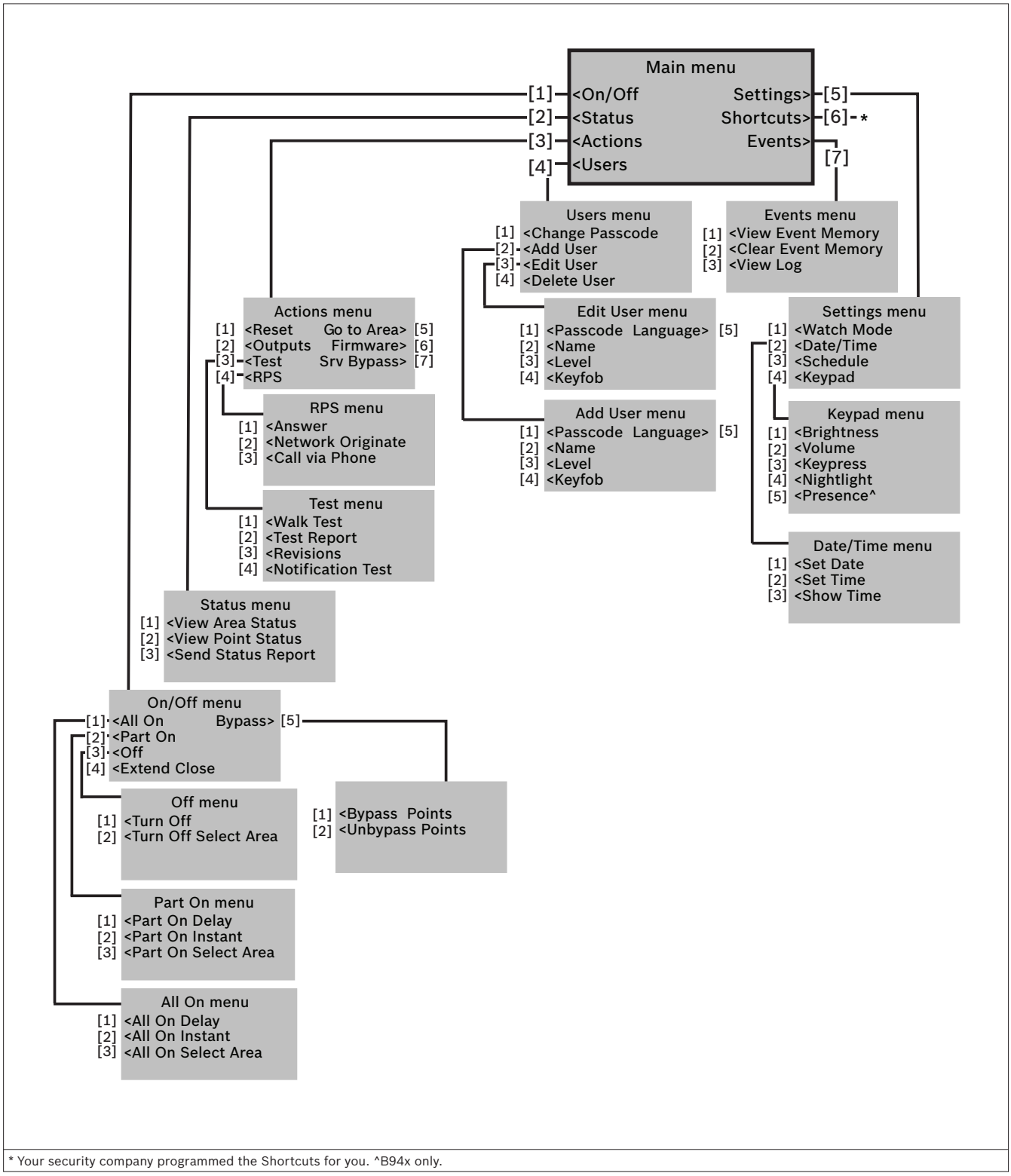


Figure 19.3: B91x/B92x keypads Main menu tree



* Your security company programmed the Shortcuts for you. ^B94x only.

Figure 19.4: B93x/B94x keypads Main menu tree

Escape, delete characters, and enter letters and special characters

– Escape from a menu. B91x/B92x/B93x keypads include a hard [ESC] key. To exit a menu and return to the previous level, press [ESC]. To exit and return to idle text from any level of the menu structure, press and hold [ESC]. The B94x has a key. To exit a menu and return to the previous level, press .
– Delete characters. B91x/B92x/B93x keypads use the [ESC] key as a backspace key. The B94x key has a (backspace) key on each keyboard screen.
– Enter letters. For B91x/B92x/B93x keypads, press a number key repeatedly to scroll through the number and letters shown on the key. For B94x, use the ABC keyboard.
– Special characters. For entering special characters on B91x/B92x keypads, refer to the table below. For entering special characters on a B93x, use the corresponding softkey.

  For entering special characters or accented characters on a B94x, press

or

to open the corresponding keyboard.

Characters	B91x/B92x
Special dialing characters in phone numbers (*, C [3-sec pause], D [Dial Tone Detect])	Press [CMD]. The special characters menu appears. Use [PREV] or [NEXT] to cycle through the characters. Press [ENTER] to choose the character shown.
Network address characters	Use the [0] key to enter a period or dash.

19.1 [1] Program menu

With the Program menu, you can program parameters to make your system operational, including phone number and format, enhanced communication options, primary and backup routes, and notifications.

19.1.1 [1] Reporting > [1] Phone menu parameters

The control panel can dial as many as four different telephone numbers when sending event reports. In this menu, you can program the telephone numbers and the format.

	Format (circle one)	Phone number
Phone 1	Modem4/Contact ID	_____
Phone 2	Modem4/Contact ID	_____
Phone 3	Modem4/Contact ID	_____
Phone 4	Modem4/Contact ID	_____

Phone Number

B91x/B92x keypads configuration of Phone Number

1. Enter the installer passcode, and then go the [1] Installer menu.
2. Go to [1] Program > [1] Reporting > [1] Phone. The keypad display toggles between showing the phone number and phone format for the phone path.
3. Use [PREV] or [NEXT] to go to the path you wish to edit.
4. Press [ENTER] to edit the phone path and then [ENTER] to edit the phone number for the selected path.
5. Delete existing characters, if necessary, and then enter the new phone number.
6. When finished, press [ENTER] to save the phone number.
7. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of Phone Number

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [1] Reporting > [1] Phone menu. The keypad shows the phone number for the phone path.
3. Use ←/[PREV] or →/[NEXT] to go to the path you wish to edit.
4. Press [Edit] to change the phone number.
5. Delete existing characters, if necessary, and then enter the new phone number.
6. When finished, press [Save] to save the programming.
7. When the keypad shows *Parameter Saved***,** escape from the menu.

Phone Format

B91x/B92x keypads configuration of Phone Format

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [1] Reporting > [1] Phone. The keypad display toggles between showing the phone number and phone format for the phone path.
3. Use [PREV] or [NEXT] to go to the path you wish to edit.
4. Press [ENTER] to edit the phone path and then press [NEXT] to go to the format option.
5. Press [ENTER] to edit the phone format for the selected path.
6. Use [PREV] or [NEXT] to toggle between the Contact ID and Modem4 option.

7. Press [ENTER] while viewing the desired format to select it and save the programming.
8. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of Phone Format

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [1] Reporting > [1] Phone menu. The keypad shows the phone number for the phone path.
3. Use ←/[PREV] or →/[NEXT] to go to the path you wish to edit.
4. Press [Format] to view and edit the phone format, and then press [Edit] to edit the phone format.
5. Press the icon or softkey for the desired format.
6. Press [Save] to save the programming.
7. When the keypad shows *Parameter Saved*, escape from the menu.

19.1.2 [1] Reporting > [2] Network menu parameters

Enhanced communications is the ability to communicate by some means other than a standard digital dialer. The control panel can include four separate enhanced communication paths to which the control panel can route events. In this menu, you can enable enhanced communication and edit the network address, network address, poll rate, and port number.

Path 1	Network Address _____	Poll Rate _____	Port Number _____
Path 2	Network Address _____	Poll Rate _____	Port Number _____
Path 3	Network Address _____	Poll Rate _____	Port Number _____
Path 4	Network Address _____	Poll Rate _____	Port Number _____

Enhanced Comm

B91x/B92x keypads configuration of Enhanced Comm

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [1] Reporting > [2] Network > [1] Enhanced Comm. The keypad shows the Enhanced Comm option as well as the current default value.
3. Press [ENTER] to view and change the enhanced comm options.
4. Use [PREV] or [NEXT] to toggle between the Yes and No options.
5. Press [ENTER] while viewing the desired option to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of Enhanced Comm

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [1] Reporting > [2] Network > [1] Enhanced Comm menu. The keypad shows the Enhanced Comm option as well as the current default value.
3. Press [Enhanced Comm] to view and change the enhanced comm options, and then press [Edit] to edit the enhanced communication option.
4. Press the icon or softkey for the desired option.
5. Press [Save] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

Network Address

Port Number

Poll Rate (seconds)

B91x/B92x keypads configuration of Network Address, Poll Rate (seconds), and Port Number

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [1] Reporting > [2] Network > [2] Enhanced Comm Parms. The keypad scrolls the Network Address, Port Number, and Poll Rate for the selected Enhanced Comm path.
3. Use [PREV] or [NEXT] to go to the path you wish to edit.
4. Press [ENTER] to edit the selected Enhanced Comm path. The keypad asks if you wish to edit the address.
5. Press [ENTER] to edit the network address. The existing address and an editing cursor show.
6. Delete existing characters, if necessary, and then enter the new address.
7. Press [ENTER] to save the address. The keypad shows *Parameter Saved*, and asks if you wish to edit the address.
8. Press [PREV]. The currently configured poll rate shows, and the keypad asks if you wish to edit the poll rate.
9. Press [ENTER] to edit the poll rate. The existing poll rate and an editing cursor show.
10. Delete existing characters, if necessary, and then enter the new rate.
11. Press [ENTER] to save the poll rate. The keypad shows *Parameter Saved*, and asks if you wish to edit the poll rate.
12. Press [PREV]. The currently configured port number shows, and the keypad asks if you wish to edit the port number.
13. Press [ENTER] to edit the port number. The existing port number and an editing cursor show.
14. Delete existing characters, if necessary, and then enter the new port number.
15. Press [ENTER] to save the port number. The keypad shows *Parameter Saved*, and asks if you wish to edit the port number.
16. Press [ESC] to return to the list of enhanced comm options, or press and hold [ESC] to exit the Installer menu.

B93x/B94x keypads configuration of Network Address, Poll Rate (seconds), and Port Number

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [1] Reporting > [2] Network > [2] Enhanced Comm Parms. The keypad shows the network address for the selected Enhanced Comm path.
3. Use /[PREV] or /[NEXT] to go to the path you wish to edit.
4. Press [Edit] to change the network address. The existing address and an editing cursor show.
5. Delete existing characters, if necessary, and then enter the new address.
6. Press [Save] to save the address. The keypad shows *Parameter Saved*, and returns to the previous menu.
7. Press [Port #] to view the port number, and the press [Edit] to edit the port number.
8. Delete existing characters, if necessary, and then enter the new port number.
9. Press [Save] to save the address. The keypad shows *Parameter Saved*, and returns to the previous menu.
10. Press [Poll Rate] to view the poll rate, and the press [Edit] to edit the poll rate number.
11. Delete existing characters, if necessary, and then enter the new poll rate.

12. Press [Save] to save the address. The keypad shows *Parameter Saved*, and returns to the previous menu.
13. Press the icon or softkey for the desired option (address, port #, poll rate, encryption).
14. Press [Edit] to change programming.
15. Press [Save] to save the programming.
16. When the keypad shows *Parameter Saved*, escape from the menu.

19.1.3 [1] Reporting > [3] Routing menu parameters

Use routing to program primary and backup destinations over standard telephone lines, local area network (LAN) or wide area network (WAN). In this menu, you can designate the primary and backup destinations for up to four routes.

Options include:

No Device, Phone 1, Phone 2, Phone 3, Phone 4, SDI2-1 (Path) 1, SDI2-1 (Path) 2, SDI2-1 (Path) 3, SDI2-1 (Path) 4, SDI2-2 (Path) 1, SDI2-2 (Path) 2, SDI2-2 (Path) 3, SDI2-2 (Path) 4, Onboard 1, Onboard 2, Onboard 3, Onboard 4.

		Route 1	Route 2	Route 3	Route 4
Primary Device	No Device	_____	_____	_____	_____
Backup Device	No Device	_____	_____	_____	_____

Primary Path Device

B91x/B92x keypads configuration of Primary Path Device

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [1] Reporting > [3] Routing. The keypad toggles between showing the current primary and backup setting for the selected route.
3. Use [PREV] or NEXT] to scroll though the list of route and go to the route you wish to program.
4. Press [ENTER] to edit the route.
5. Press [ENTER] to edit the primary route. The keypad shows [Set Route Device] menu.
6. Use [PREV] or NEXT] to scroll though the list of device (for path 1) and go to the path 1 option you wish to select for the current device (for example, Phone 1).
7. Press [ENTER] to select the device. The keypad shows [Set Route Path]. To keep path 1, escape from the menu. To change to a different path (2, 3, or 4), continue to Step 8.
8. Delete existing characters, if necessary, and then enter the new number.
9. Press [ENTER] to save the change, and then escape from the menu.

B93x/B94x keypads configuration of Primary Path Device

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [1] Reporting > [3] Routing. The keypad shows the primary device for the selected route.
3. Use ← /[PREV] or → /[NEXT] to scroll though the list of routes and go to the route you wish to program.
4. Press [Edit] to edit the primary path device for the selected route.
5. Use ← /[PREV] or → /[NEXT] to scroll though the list of devices (for path 1) and go to the path 1 option you wish to select for the current device (for example, Phone 1).
6. To keep path 1, escape from the menu. To change to a different path (2, 3, or 4), press [Edit Path] and continue to Step 8.
7. Delete existing characters, if necessary, and then enter the new number.

8. Press [Save] to save the change, and then escape from the menu.

Backup Path Device

Notice!
Keypads show and allow you to select the Backup Path Device only after you select a Primary Path Device.

B91x/B92x keypads configuration of Backup Path Device

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [1] Reporting > [3] Routing. The keypad toggles between showing the current primary and backup setting for the selected route.
3. Use [PREV] or [NEXT] to scroll though the list of route and go to the route you wish to program.
4. Press [ENTER] to edit the route.
5. Press [NEXT] to go to the option to edit the backup route.
6. Press [ENTER]. The keypad shows [Set Route Device] menu.
7. Use [PREV] or [NEXT] to scroll though the list of device (for path 1) and go to the path 1 option you wish to select for the current device (for example, Phone 1).
8. Press [ENTER] to select the device. The keypad shows [Set Route Path]. To keep path 1, escape from the menu. To change to a different path (2, 3, or 4), continue to Step 9.
9. Delete the current number, and then enter the new number.
10. Press [ENTER] to save the change, and then escape from the menu.

B93x/B94x keypads configuration of Backup Path Device

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [1] Reporting > [3] Routing. The keypad shows the primary device for the selected route.
3. Use ←/[PREV] or →/[NEXT] to scroll though the list of routes and go to the route you wish to program.
4. Press [Backup] to edit the backup path device for the selected route.
5. Use [PREV] or [NEXT] to scroll though the list of devices (for path 1) and go to the path 1 option you wish to select for the current device (for example, Phone 1).
6. To keep path 1, escape from the menu. To change to a different path (2, 3, or 4), press [Edit Path] and continue to Step 8.
7. Delete the current number, and then enter the new number.
8. Press [Save] to save the change, and then escape from the menu.

19.1.4 [1] Reporting > [4] Personal Note menu parameters

The control panel can send text messages and emails for personal notification over Ethernet or using a cellular communicator. You can configure up to 16 destinations using a combination of cellular phone numbers and email addresses. The system considers an email address valid if you copy it verbatim from an internet email provider. In this menu, you can add a phone number or email address to each personal notification identifier (1 through 16).

Notification Number	Phone number or email address
1	_____
2	_____

3 _____
4 _____
5 _____
6 _____
7 _____
8 _____
19 _____
10 _____
11 _____
12 _____
13 _____
14 _____
15 _____
16 _____

SMS Phone #

B91x/B92x keypads configuration of SMS Phone #

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [1] Reporting > [4] Personal Note. The keypad shows the phone number or email address of the selected personal notification destination.
3. Use [PREV] or [NEXT] to scroll though the list of personal notification destination, and go to the destination you wish to program.
4. Press [ENTER] to edit the phone number or email address.
5. Delete existing characters, if necessary, and then enter the new characters.
6. Press [ENTER] to save the phone number or email address.
7. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of SMS Phone #

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [1] Reporting > [4] Personal Note. The keypad shows the phone number or email address of the selected destination.
3. Use ←/[PREV] or →/[NEXT] to scroll though the list of destinations and go to the destination you wish to program.
4. Press [Edit] to edit the phone number or email address.
5. Delete existing characters, if necessary, and then enter the new characters.
6. Press [Save] to save the phone number or email address.
7. When the keypad shows *Parameter Saved*, escape from the menu.

19.1.5 [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [1] Module Parameters menu

You can use DCHP/AutoIP or UPnP for Ethernet communication with the on-board Ethernet or a B426. In this menu, you can enable and disable these protocols.

	Default	**Module settings**
DHCP/AutoIP Enable	Yes	Yes/No

UPnP Enable	Yes	Yes/No
IPv4 Address	0.0.0.0	_____
IPv4 Subnet Mask	255.255.255.255	_____
Default Gateway	0.0.0.0	_____
HTTP Port Number	80	_____
IPv4 Server Address	0.0.0.0	_____
IPv6 Server Address	0.0.0.0	_____
Module Hostname	Blank	_____

DHCP/AutoIP Enable

B91x/B92x keypads configuration of DHCP/AutoIP Enable

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [1] Module Parameters > [1] DHCP. The keypad shows the DHCP/AutoIP current configuration.
3. Press [ENTER] to edit the DHCP/AutoIP Enable configuration for the module.
4. Use [PREV] or [NEXT] to toggle between Yes and No.
5. Press [ENTER] while viewing the desired option to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of DHCP/AutoIP Enable

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [1] Module Parameters > [1] DHCP. The keypad shows the DHCP/AutoIP current configuration.
3. Press [Yes] or [No] – whichever is available – to change the programming.
4. Press [Save] to save the programming.
5. When the keypad shows *Parameter Saved*, escape from the menu.

UPnP Enable

B91x/B92x keypads configuration of UPnP Enable

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [1] Module Parameters > [2] UPnP. The keypad shows the UPnP current configuration.
3. Press [ENTER] to edit the UPnP Enable configuration for the module.
4. Use [PREV] or [NEXT] to toggle between Yes and No.
5. Press [ENTER] while viewing the desired option to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of UPnP Enable

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [1] Module Parameters > [2] UPnP. The keypad shows the UPnP current configuration.
3. Press [Yes] or [No] – whichever is available – to change the programming.
4. Press [Save] to save the programming.
5. When the keypad shows *Parameter Saved*, escape from the menu.

19.1.6 [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [2] Address Parameters menu

IPv4 Address

B91x/B92x keypads configuration of IPv4 Address

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [2] Address Parameters > [1] IP Address.
3. Press [ENTER] to edit the IP address.
4. Delete the existing number, if necessary, and then enter the new number. Use [PREV] or [NEXT] to move to a different byte.
5. Press [ENTER] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of IPv4 Address

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [2] Address Parameters > [1] IP Address.
3. Press [Edit] to edit the IP address.
4. Delete the existing number, if necessary, and then enter the new number. Use ←/[PREV] or →/[NEXT] to move through the different bytes.
5. Press [Save] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

IPv4 Subnet Mask

B91x/B92x keypads configuration of IPv4 Subnet Mask

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [2] Address Parameters > [2] Subnet Mask.
3. Press [ENTER] to edit the subnet mask address.
4. Delete the existing number, if necessary, and then enter the new number. Use [PREV] or [NEXT] to move to a different byte.
5. Press [ENTER] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of IPv4 Subnet Mask

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [2] Subnet Mask.
3. Press [IPv4 Subnet Mask] to edit the subnet mask address.
4. Delete the existing number, if necessary, and then enter the new number. Use ←/[PREV] or →/[NEXT] to move to a different byte, and use the number keys to enter the new numbers.
5. Press [Save] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

Default Gateway

B91x/B92x keypads configuration of Default Gateway

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [2] Address Parameters > [3] Default Gateway.
3. Press [ENTER] to edit the gateway.
4. Delete the existing number, if necessary, and then enter the new number. Use [PREV] or [NEXT] to move to a different byte.
5. Press [ENTER] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of Default Gateway

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [2] Address Parameters > [3] Default Gateway.
3. Press [Default Gateway] to edit the gateway.
4. Delete the existing number, if necessary, and then enter the new number. Use ←/[PREV] or →/[NEXT] to move to a different byte.
5. Press [Save] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

HTTP Port Number

B91x/B92x keypads configuration of HTTP Port Number

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [2] Address Parameters > [4] HTTP Port Number.
3. Press [ENTER] to edit the port number.
4. Delete the existing number, if necessary, and then enter the new number.
5. Press [ENTER] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of HTTP Port Number

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [2] Address Parameters > [4] HTTP Port Number.
3. Press [HTTP Port Number] to edit the port number.
4. Delete the existing number, if necessary, and then enter the new number.
5. Press [Save] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

19.1.7 [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [3] DNS Parameters menu

IPv4 Server Address

B91x/B92x keypads configuration of IPv4 Server Address

1. Enter the installer passcode, and then open the [1] Installer menu.

2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [3] DNS Parameters > [1] IPv4 Server Address. The keypad shows the IPv4 Server Address current configuration.
3. Press [ENTER] to edit the IPv4 Server Address.
4. Delete the existing number, if necessary, and then enter the new number. Use [PREV] or [NEXT] to move to a different byte.
5. Press [ENTER] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of IPv4 Server Address

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [3] DNS Parameters [1] IPv4 Server Address. The keypad shows the DHCP/AutoIP current configuration.
3. Press [IPv4 Server Address] to edit the IP address.
4. Delete the existing number, if necessary, and then enter the new number. Use ←/[PREV] or →/[NEXT] to move to a different byte.
5. Press [Save] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

IPv6 Server Address

B91x/B92x keypads configuration of IPv6 Server Address

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [3] DNS Parameters > [2] IPv6 Server Address. The keypad shows the IPv4 Server Address current configuration.
3. Press [ENTER] to edit the IPv6 Server Address.
4. Delete the existing number, if necessary, and then enter the new number. Use [PREV] or [NEXT] to move to a different byte.
5. Press [ENTER] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of IPv6 Server Address

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [3] DNS Parameters > [2] IPv6 Server Address. The keypad shows the DHCP/AutoIP current configuration.
3. Press [IPv6 Server Address] to edit the IP address.
4. Delete the existing number, if necessary, and then enter the new number. Use ←/[PREV] or →/[NEXT] to move to a different byte.
5. Press [Save] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

Module Hostname

B91x/B92x keypads configuration of Module Hostname

1. Enter the installer passcode, and then open the [1] Installer menu.

2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [3] DNS Parameters > [3] Module Hostname. The keypad shows the IPv4 Server Address current configuration.
3. Press [ENTER] to edit the hostname.
4. Delete existing characters, if necessary, and then enter the new characters.
5. Press [ENTER] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of Module Hostname

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [1] Ethernet > ([1] Bus Module or [2] On-board) > [3] DNS Parameters > [3] Module Hostname. The keypad shows the DHCP/AutoIP current configuration.
3. Press [Module Hostname] to edit the hostname
4. Delete existing characters, if necessary, and then enter the new characters.
5. Press [Save] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

19.1.8 [2] Network > [2] Cellular > ([1] SDI2 Cellular (1) or [2] Plug-in Module)

You can use a B44x cellular communication module

	Module settings
SIM APN	_____
SIM Username	_____
SIM Passcode	_____
SIM PIN	_____

SIM APN

B91x/B92x keypads configuration of SIM APN

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [2] Cellular > ([1] SDI2 Cellular (1) or [2] Plug-in Module) > [1] SIM APN. The keypad shows the current configuration.
3. Press [ENTER] to edit the configuration.
4. Delete existing characters, if necessary, and then enter the new characters.
5. Press [ENTER] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of SIM APN

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [2] Cellular > ([1] SDI2 Cellular (1) or [2] Plug-in Module) > [1] SIM APN. The keypad shows the DHCP/AutoIP current configuration.
3. Press [Edit] to edit the configuration.
4. Delete existing characters, if necessary, and then enter the new characters.
5. Press [Save] to save the changes.
6. When the keypad shows *Parameter Saved*, escape from the menu.

SIM Username

B91x/B92x keypads configuration of SIM Username

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [2] Cellular > ([1] SDI2 Cellular (1) or [2] Plug-in Module) > [2] SIM Username. The keypad shows the current configuration.
3. Press [ENTER] to edit the configuration.
4. Delete existing characters, if necessary, and then enter the new characters.
5. Press [ENTER] to save the changes.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of SIM Username

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [2] Cellular > ([1] SDI2 Cellular (1) or [2] Plug-in Module) > [2] SIM Username. The keypad shows the UPnP current configuration.
3. Press [Edit] to edit the configuration.
4. Delete existing characters, if necessary, and then enter the new characters.
5. Press [Save] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

SIM Passcode

B91x/B92x keypads configuration of SIM Passcode

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [2] Cellular > ([1] SDI2 Cellular (1) or [2] Plug-in Module) > [3] SIM Passcode. The keypad shows the current configuration.
3. Press [ENTER] to edit the configuration.
4. Delete existing characters, if necessary, and then enter the new characters.
5. Press [ENTER] to save the changes.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of SIM Passcode

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [2] Cellular > ([1] SDI2 Cellular (1) or [2] Plug-in Module) > [3] SIM Passcode. The keypad shows the UPnP current configuration.
3. Press [Edit] to edit the configuration.
4. Delete existing characters, if necessary, and then enter the new characters.
5. Press [Save] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

SIM PIN

B91x/B92x keypads configuration of SIM PIN

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [2] Cellular > ([1] SDI2 Cellular (1) or [2] Plug-in Module) > [4] SIM PIN. The keypad shows the current configuration.
3. Press [ENTER] to edit the configuration.
4. Delete existing characters, if necessary, and then enter the new characters.
5. Press [ENTER] to save the changes.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of SIM Passcode

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [2] Network > [2] Cellular > ([1] SDI2 Cellular (1) or [2] Plug-in Module) > [4] SIM PIN. The keypad shows the UPnP current configuration.
3. Press [Edit] to edit the configuration.
4. Delete existing characters, if necessary, and then enter the new characters.
5. Press [Save] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

19.1.9 [3] RPS > [1] RPS Passcode menu parameters

The control panel verifies the remote programming software at the central station has valid access before connecting using the RPS passcode. In this menu, you can program the RPS passcode.

RPS Passcode

B91x/B92x keypads configuration of RPS Passcode

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [3] RPS > [1] RPS Passcode.
3. Press [ENTER] to edit RPS passcode.
4. Delete existing characters, if necessary, and then enter the new characters.
5. Press [ENTER] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of RPS Passcode

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [3] RPS > [1] RPS Passcode.
3. Press [Edit] to change the passcode.
4. Delete existing characters, if necessary, and then enter the new characters.
5. Press [Save] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

19.1.10 [3] RPS > [2] RPS Phone Number menu parameters

The RPS Phone Number is the number the control panel dials to contact RPS. In this menu, you can program the RPS phone number.

RPS Phone Number

B91x/B92x keypads configuration of RPS Phone Number

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [3] RPS > [2] RPS Phone Number.
3. Press [ENTER] to edit RPS phone number.
4. Delete existing numbers, if necessary, and then enter the new numbers.
5. Press [ENTER] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of RPS Phone Number

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [3] RPS > [2] RPS Phone Number.
3. Press [Edit] to change the phone number.
4. Delete existing number, if necessary, and then enter the new number.
5. Press [ENTER] to save the phone number.

6. Press [Save] to save the programming.
7. When the keypad shows *Parameter Saved*, escape from the menu.

19.1.11 [3] RPS > [3] RPS IP Address menu parameters

The control panel can use a network hostname or an IPv4 address to call RPS. In this menu, you can program the IPv4 address or hostname for RPS communication.

RPS IP Address

B91x/B92x keypads configuration of RPS IP Address

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [3] RPS > [3] RPS IP Address.
3. Press [ENTER] to edit RPS IP address.
4. Use [PREV] or [NEXT] to toggle between the option to edit the address as an IPv4 address or as a hostname. Press [ENTER] when the keypad shows the option you wish to edit.
5. Delete existing characters, if necessary, and then enter the new characters. Use [PREV] or [NEXT] to move to a different byte.
6. Press [ENTER] to save the programming.
7. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of RPS IP Address

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [3] RPS > [3] RPS IP Address.
3. Press [Edit as IPv4] for an IP address, or the [Edit as Name] for a hostname.
4. Delete existing characters, if necessary, and then enter the new characters. Use [PREV] or [NEXT] to move to a different byte.
5. For an IPv4 address, use /[PREV] or /[NEXT] to move to a different byte, and use the number keys to enter the new numbers. For a hostname, press a number key repeatedly to scroll through the number and letters shown on the key.
6. Press [Save] to save the programming.
7. When the keypad shows *Parameter Saved*, escape from the menu.

19.1.12 [3] RPS > [4] RPS Port Number menu parameters

In this menu, you can specify the destination port for outgoing RPS session requests to the specified IP address.

RPS Port Number

B91x/B92x keypads configuration of RPS Port Number

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [3] RPS > [3] RPS Port Number.
3. Press [ENTER] to edit RPS port number.
4. Delete the existing number, if necessary, and then enter the new number.
5. Press [ENTER] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of RPS Port Number

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [3] RPS > [3] RPS Port Number.
3. Press [Edit] to change the phone number.
4. Delete the existing number, if necessary, and then enter the new number.

5. Press [Save] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

19.1.13 [4] Area Options menu parameters

This parameter enables or disables specified areas. A enabled areas must have assigned account numbers. In this menu, you can turn on or off areas and assign area account numbers.

	Area 1	**Area 2**	**Area 3**	**Area 4**
Area On	Yes/No	Yes/No	Yes/No	Yes/No
Account Number	_____	_____	_____	_____

Area On

B91x/B92x keypads configuration of Area On

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [4] Area Options. The keypad toggles between showing the Area On state and the account number for the selected areas.
3. Use [PREV] or [NEXT] to go to the desired area.
4. Press [ENTER] to edit the area and then [ENTER] to edit the Area On state for the selected area.
5. Use [PREV] or [NEXT] to toggle between Yes and No.
6. Press [ENTER] while viewing the desired option to save the programming.
7. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of Area On

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [4] Area Options menu. The keypad shows the Area On state for the selected area.
3. Use ←/[PREV] or →/[NEXT] to go to the desired area.
4. Press [Edit] to edit the Area On state for the selected area.
5. Press [Yes] or [No].
6. Press [Save] to save the programming.
7. When the keypad shows *Parameter Saved*, escape from the menu.

Account Number

B91x/B92x keypads configuration of Account Number

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [4] Area Options. The keypad toggles between showing the Area On state and the account number for the selected areas.
3. Use [PREV] or [NEXT] to go to the desired area.
4. Press [ENTER] to edit the area, and then press [NEXT] to go to the account number option.
5. Press [ENTER] to edit the account number for the selected area.
6. Delete existing characters, if necessary, and then enter the new characters.
7. Press [ENTER] to save the programming.
8. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of Account Number

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [4] Area Options menu. The keypad shows the Area On state for the selected area.
3. Use ←/[PREV] or →/[NEXT] to go to the desired area.
4. Press [Account #] to view and edit the account number, and then press [Edit] to edit the account number.
5. Delete existing characters, if necessary, and then enter the new characters.
6. Press [Save] to save the programming.
7. When the keypad shows *Parameter Saved*, escape from the menu.

19.1.14 [5] Keypad menu parameters

The scope of a keypad defines which areas the keypad affects when armed (on), which areas you can view with this keypad, and the areas to which this keypad can move. In this menu, you can choose the keypad's scope.

	Scope (Circle one)
Keypad 1	No Device / Area Wide / Acct Wide / Panel Wide
Keypad 2	No Device / Area Wide / Acct Wide / Panel Wide
Keypad 3	No Device / Area Wide / Acct Wide / Panel Wide
Keypad 4	No Device / Area Wide / Acct Wide / Panel Wide
Keypad 5	No Device / Area Wide / Acct Wide / Panel Wide
Keypad 6	No Device / Area Wide / Acct Wide / Panel Wide
Keypad 7	No Device / Area Wide / Acct Wide / Panel Wide
Keypad 8	No Device / Area Wide / Acct Wide / Panel Wide

Scope

B91x/B92x keypads configuration of Scope

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [5] Keypad. The keypad shows scope for the selected keypad.
3. Use [PREV] or [NEXT] to go to the desired keypad.
4. Press [ENTER] to edit the scope.
5. Use [PREV] or [NEXT] to go to the desired scope.
6. Press [ENTER] while viewing the desired scope to save the new format selection.
7. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of Scope

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [5] Keypad. The keypad shows scope for the selected keypad.
3. Use ←/[PREV] or →/[NEXT] to go to the desired keypad.
4. Press [Edit] to edit the scope.
5. Press the icon or softkey for the desired format.
6. Press [Save].
7. When the keypad shows *Parameter Saved*, escape from the menu.

19.1.15 [6] Users menu parameters

The control panel can store up to 50 users. In this menu, you can change the Service User passcode and the passcode for User 1.

You can add and remove users, change users passcodes, and perform other user functions in the keypad users menu. Refer to the *Control Panels* (*B5512/B4512/B3512) Owner's Manual* for more information. Use the *User (Passcode) Worksheet* to keep track of users and passcodes, provided after the keypad instructions, if desired.

Users

B91x/B92x keypads configuration of Users

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [6] Users. The keypad shows the passcode of the currently selected user.
3. Use [PREV] or [NEXT] to toggle between user 000 (service user) and user 001 and go to the user you wish to edit.
4. Press [ENTER] to edit the selected user. The curser will flash at the editing location.
5. Delete existing characters, if necessary, and then enter the new characters.
6. Press [ENTER] to save the phone number.
7. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of Users

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [6] Users menu. The keypad shows the user passcode for the selected user.
3. Use ←/[PREV] or →/[NEXT]] to toggle between user 000 (service user) and user 001 and go to the user you wish to edit.
4. Press [Edit] to change the passcode.
5. Delete existing characters, if necessary, and then enter the new characters.
6. Press [Save].
7. When the keypad shows *Parameter Saved*, escape from the menu.

User (Passcode) Worksheet

User ###		User Group	Area Authority				
	Passcode		1	2	3*	4*	User Name
000	123 _ _ _	___	15	15	15	15	SERVICE PASSCODE
001	123456	___	1	_	_	_	USER 1
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _

_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
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_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
_ _ _	_ _ _ _ _ _	___	_	_	_	_	USER _ _
* Applicable to B5512 only							

19.1.16 [7] Points menu parameters

Point indexes determine how points operate, and a point's source determines the type of point. In this menu, you can program point indexes and sources.

Point Source selections	
Unassigned	Output
Octo-input	Keypad
Wireless	IP Camera*
On-board	
* The B426, B3512, and the E variants do not support IP cameras.	

Point Type selections	
24-Hour	Open/Close Point
Part On	Fire Point
Interior	Aux AC Supervision
Interior Follower	Gas Point
Keyswitch Maintained	Custom Function
Keyswitch Momentary	

Point Response selections*		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Turned on (armed)	Open	I	I	I	I	D	D	I	I	D	I	I	I	I	I	T	
	Short	I	I	I	I	I	I	D	D	D	I	I	I	I	I	I	
Turned off (disarmed)	Open		T		T				T		I	I	T	I		T	
	Short			T	T		T				I	T	I		I		
24-Hour	Open	I	T	I	T			I	T	S	T	S		S	Not Applicable		
	Short	I	I	T	T	I	T			T	S		S	S			
*Selections: D = Delayed Response, I = Instant Alarm, S = Supervisory, T = Trouble, Blank = No Response																	

Custom function Point Response selections*		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Turned on (armed)	Open	I	I	I	I	D	D	I	I	D	I	I	I	I	I	T	
	Short	I	I	I	I	I	I	D	D	D	I	I	I	I	I	I	
Turned off (disarmed)	Open		CF	CF	T	CF		CF	CF	T	CF						
	Short	CF		CF	CF	T	CF		CF	CF	T				I		
*Selections: CF = Execute Custom Function, T = Trouble, Blank = No Response																	

		Point Index description							
Point Index description defaults:									
1	24-hr Instant Open/Short								
2	24-hr Inv/Sil on Short								
3	Pull Station								
4	Smoke Detector								
5	Smoke Detector w/ Verification								
6	Bell Supervision – D192G								
7	Part On: Instant								
8	Part On: Delay								

Prompt Point Index #	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Type	____	____	____	____	____	____	____	____
Point Response	__(0)__	__(1)__	__(1)__	__(1)__	__(1)__	__(9)__	__(1)__	__(7)__
Entry Delay	_(30)_	_(30)_	_(30)_	_(30)_	_(30)_	_(30)_	_(30)_	_(30)_
Entry Tone Off	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Silent Bell	Y/**N**	**Y**/N	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Ring Until Restored	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Audible After Two Fails	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Invisible Point	Y/**N**	**Y**/N	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Buzz on Fault	__(0)__	__(0)__	__(0)__	__(0)__	__(0)__	__(0)__	__(0)__	__(0)__
Watch Point	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	**Y**/N
Output Response Type	__(0)__	__(0)__	__(0)__	__(0)__	__(0)__	__(0)__	__(0)__	__(0)__
Display as Device	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Local While Disarmed	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Local While Armed	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Disable Restorals	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
FA Returnable	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Bypass Returnable	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Bypassable	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Swinger Bypass	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Report Bypass at Occurrence	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Defer Bypass Report	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Cross Point	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Alarm Verify	Y/**N**	Y/**N**	Y/**N**	Y/**N**	**Y**/N	Y/**N**	Y/**N**	Y/**N**
Resettable	Y/**N**	Y/**N**	Y/**N**	**Y**/N	**Y**/N	Y/**N**	Y/**N**	Y/**N**
Alarm Abort	**Y**/N	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	**Y**/N	**Y**/N
Wireless Point Supervision Time** (None)	____	____	(4)___	(4)___	(4)___	(4)___	____	____
Custom Function	**Disabled**	**Disabled**	**Disabled**	**Disabled**	**Disabled**	**Disabled**	**Disabled**	**Disabled**

		Point Index description							
Point Index description defaults:									
9	Part: Inst Local: Dis								
10	Interior: Instant								

11	Interior: Delay								
12	Int: Inst Local: Dis								
13	Interior: Follower								
14	Maintained Keyswitch								
15	Momentary Keyswitch								
16	Open/Close on Fault								
Prompt Point Index #		**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Type		____	____	____	____	____	____	____	____
Point Response		__(B)__	__(1)__	__(7)__	__(B)__	__(7)__	__(1)__	__(1)__	__(1)__
Entry Delay		_ (30)_	_ (30)_	_ (30)_	_ (30)_	_ (30)_	_ (30)_	_ (30)_	_(30)_
Entry Tone Off		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Silent Bell		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Ring Until Restored		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Audible After Two Fails		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Invisible Point		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Buzz on Fault		__(1)__	__(0)__	__(0)__	__(0)__	__(0)__	__(0)__	__(0)__	__(0)__
Watch Point		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Output Response Type		__(0)__	__(0)__	__(0)__	__(0)__	__(0)__	__(0)__	__(0)__	__(0)__
Display as Device		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Local While Disarmed		**Y**/N	Y/**N**	Y/**N**	**Y**/N	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Local While Armed		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Disable Restorals		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
FA Returnable		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Bypass Returnable		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Bypassable		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Swinger Bypass		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Report Bypass at Occurrence		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Defer Bypass Report		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Cross Point		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Alarm Verify		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Resettable		Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**	Y/**N**
Alarm Abort		**Y**/N	**Y**/N	**Y**/N	**Y**/N	**Y**/N	**Y**/N	**Y**/N	**Y**/N

Wireless Point Supervision Time** (None)	____	____	____	____	____	____	____	____
Custom Function	**Disabled**	**Disabled**	**Disabled**	**Disabled**	**Disabled**	**Disabled**	**Disabled**	**Disabled**

		Point Index description			
Point Index description defaults:					
17	Gas				
18	Gas Supervisory				
19	AUX AC Supervision				
20	Part On: Watch Off				
Prompt Point Index #		**17**	**18**	**19**	**20**
Type		____	____	____	____
Point Response		__(1)__	__(2)__	__(1)__	__(E)__
Entry Delay		_(30)_	_(30)__	_(30)_	_(30)_
Entry Tone Off		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Silent Bell		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Ring Until Restored		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Audible After Two Fails		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Invisible Point		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Buzz on Fault		__(0)__	__(0)__	__(0)__	__(0)__
Watch Point		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Output Response Type		__(0)__	__(0)__	__(0)__	__(0)__
Display as Device		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Local While Disarmed		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Local While Armed		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Disable Restorals		Y/**N**	Y/**N**	Y/**N**	Y/**N**
FA Returnable		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Bypass Returnable		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Bypassable		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Swinger Bypass		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Report Bypass at Occurrence		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Defer Bypass Report		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Cross Point		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Alarm Verify		Y/**N**	Y/**N**	Y/**N**	Y/**N**
Resettable		Y/**N**	Y/**N**	Y/**N**	Y/**N**

Alarm Abort	**Y**/N	**Y**/N	**Y**/N	**Y**/N
Wireless Point Supervision Time** (None)	**——**	**——**	——	——
Custom Function	**Disabled**	**Disabled**	**Disabled**	**Disabled**

Point worksheet										
Point #	**Point Source**	**Point Index**	**Area Assign**			**Point #**	**Point Source**	**Point Index**	**Area Assign**	
001	Onboard	(3) __ __	(1)	___		__ __ __	Onboard	__ __	(1)	___
002	Onboard	(1) __ __	(1)	___		__ __ __	Onboard	__ __	(1)	___
003	Onboard	(25) __ __	(1)	___		__ __ __	Onboard	__ __	(1)	___
004	Onboard	(13) __ __	(1)	___		__ __ __	Onboard	__ __	(1)	___
005	Onboard	(7) __ __	(1)	___		__ __ __	Onboard	__ __	(1)	___
006	Onboard	(7) __ __	(1)	___		__ __ __	Onboard	__ __	(1)	___
007	Onboard	(7) __ __	(1)	___		__ __ __	Onboard	__ __	(1)	___
008	Onboard	(7) __ __	(1)	___		__ __ __	Onboard	__ __	(1)	___
009	Wireless	__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___
__ __ __		__ __	(1)	___		__ __ __		__ __	(1)	___

_ _ _		_ _	(1)	_		_ _ _		_ _	(1)	_
_ _ _		_ _	(1)	_		_ _ _		_ _	(1)	_

Caution!

Any points programmed as fire supervisory points are latching.

Point Index

B91x/B92x keypads configuration of Point Index

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [7] Points option. The keypad toggles between showing the point index and point source for the selected point.
3. Use [PREV] or [NEXT] to go to the desired point, or enter the point number.
4. Press [ENTER] to edit the point and then [ENTER] to edit the index for the selected point.
5. Delete existing characters, if necessary, and then enter the new characters.
6. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of Point Index

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [7] Points option. The keypad shows the index for the selected point.
3. Use /[PREV] or /[NEXT] to go to the desired point, or enter the point number.
4. Press [Edit] to change the index.
5. Delete existing characters, if necessary, and then enter the new characters.
6. Press [Save].
7. When the keypad shows *Parameter Saved*, escape from the menu.

Point Source

B91x/B92x keypads configuration of Point Source

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [7] Points option. The keypad shows the index for the selected point.
3. Use [PREV] or [NEXT] to go to the desired point, or enter the point number.
4. Press [ENTER] to edit the point and then press [NEXT] to go to the source option.
5. Press [ENTER] to edit the source for the selected point.
6. Use [PREV] or [NEXT] to scroll through the available options.
7. Press [ENTER] while viewing the desired source to save the programming.
8. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of Point Source

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [7] Points option. The keypad shows the point index for the selected point.
3. Use /[PREV] or /[NEXT] to go to the desired point, or enter the point number.
4. Press [Source] to view and edit the source, and then press [Edit] to edit the source.

5. Use ←/[PREV] or →/[NEXT] to scroll through the available options.
6. Press [Save] to save the programming.
7. When the keypad shows *Parameter Saved*, escape from the menu.

RFID

B91x/B92x keypads configuration of RFID

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [7] Points option. The keypad toggles between showing the point index and point source for the selected point.
3. Use [PREV] or [NEXT] to go to the desired point, or enter the point number.
4. Press [ENTER] to edit the point and then press [NEXT] to go to the RFID option if the source is Wireless.
5. Press [ENTER] to edit the RFID for the selected.
6. Delete existing characters, if necessary, and then enter the new numbers listed on the wireless device.
7. Press [ENTER] while viewing the desired source to save the programming.
8. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of RFID

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [7] Points option. The keypad shows the index for the selected point.
3. Use ←/[PREV] or →/[NEXT] to go to the desired point, or enter the point number.
4. Press [Source] to view and edit the source. If the source is Wireless, the [RFID] softkey appears.
5. Press [RFID] to edit the RFID.
6. Delete existing characters, if necessary, and then enter the new numbers listed on the wireless device.
7. Press [Save] to save the programming.
8. When the keypad shows *Parameter Saved*, escape from the menu.

19.1.17 [8] Disable Programming menu

Use of the Keypad Installer menu is enabled by default. When enabled, the Service User (Authority Level 15) has authority to access the menus. If you disable Keypad Programming, the Service User cannot access the menus. In this menu, you can disable Keypad Programming.

Notice!

You can continue using the current programming session. Disabling Keypad Programming applies once you exit the current session.

Keypad Programming

B91x/B92x keypads configuration of Keypad Programming

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [8] Disable Programming. The keypad shows that programming is enabled.

3. Press [ENTER] to disable keypad programming, and then press [NEXT] to go to the No option.
4. Press [ENTER] to save the programming.
5. When the keypad shows *Parameter Saved*, escape from the menu.

B93x/B94x keypads configuration of Keypad Programming

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [1] Program > [8] Disable Programming. The keypad display shows that programming is enabled.
3. Press [Edit] to disable keypad programming.
4. Press [No].
5. Press [Save] to save the programming.
6. When the keypad shows *Parameter Saved*, escape from the menu.

19.2 [2] Wireless menu

Use the Wireless menu to add, replace, remove, and diagnose points and repeaters.

19.2.1 [1] RF Point Menu> [1] Enroll Point RFID

Once the control panel has points programmed as Wireless (refer to *B91x/B92x keypads configuration of Point Source, page 133*), you can enroll RF devices into the system for use as a specified wireless point. In this menu, you can enroll RFID points.

Enroll Point RFID

B91x/B92x keypads use of Enroll Point RFID

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Wireless > [1] RF Point Menu> [1] Enroll Point RFID. The keypad lists any enrolled points.
3. Use [PREV] or [NEXT] to scroll though the list of wireless points, and go to the point for which you wish to enroll a device, or simply enter the point number.
4. Press [ENTER] to add the device. The keypad instructs you to reset the device.
5. Initiate activity for the desired RADION device (walk through the coverage pattern if enrolling a motion detector, or press the button on the keyfob if enrolling a keyfob, or open the door or window if enrolling a door/window contact), or press the RESET button on an Inovonics device.
6. When the keypad shows Point Enrolled, escape from the menu.
7. Verify the RFID shown on the keypad matches the RFID label on the activated device.

B93x/B94x keypads use of Enroll Point RFID

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Program > [1] RF Point Menu> [1] Enroll Point RFID.
3. Use ←/[PREV] or →/[NEXT] to scroll though the list of wireless points, and go to the point for which you wish to enroll a device, or simply enter the point number.
4. Press [Yes] to add the device. The keypad instructs you to reset the device.
5. Initiate activity for the desired device (walk through the coverage pattern if enrolling a motion detector, or press the button on the keyfob if enrolling a keyfob, or open the door or window if enrolling a door/window contact), or press the RESET button on an Inovonics device.
6. When the keypad shows *Point Enrolled*, escape from the menu.
7. Verify the RFID shown on the keypad matches the RFID label on the activated device.

19.2.2 [1] RF Point Menu> [2] Replace Point RFID

In this menu, you can replace RFID points.

Replace Point RFID

B91x/B92x keypads use of Replace Point RFID

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Wireless > [1] RF Point Menu> [2] Replace Point RFID. The keypad lists any enrolled points.
3. Use [PREV] or [NEXT] to scroll though the list of wireless points, and go to the point for which you wish to replace the device, or simply enter the point number.
4. Press [ENTER] to replace the device. The keypad instructs you to reset the new device.
5. Initiate discovery on a RADION device per the device instructions, or press the RESET button on an Inovonics device.
6. When the keypad shows *Point Enrolled*, escape from the menu.

B93x/B94x keypads use of Replace Point RFID

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Wireless > [1] RF Point Menu> [2] Replace Point RFID. The keypad lists any enrolled points.
3. Use ←/[PREV] or →/[NEXT] to scroll though the list of wireless points, and go to the point for which you wish to replace the device, or simply enter the point number.
4. Press [ENTER] to replace the device. The keypad instructs you to reset the new device.
5. Initiate discovery on a RADION device per the device instructions, or press the RESET button on an Inovonics device.
6. When the keypad shows *Point Enrolled*, escape from the menu.

19.2.3 [1] RF Point Menu> [3] Remove Point RFID

In this menu, you can remove RFID points.

Remove Point RFID

B91x/B92x keypads use of Remove Point RFID

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Wireless > [1] RF Point Menu> [3] Remove Point RFID. The keypad lists any enrolled points.
3. Use [PREV] or [NEXT] to scroll though the list of wireless points, and go to the point you wish to remove, or simply enter the point number.
4. Press [ENTER] to remove the device. The keypad removes the device and shows *Point RFID Removed*.
5. Escape from the menu.

B93x/B94x keypads use of Remove Point RFID

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Program > [1] RF Point Menu> [3] Remove Point RFID. The keypad lists any enrolled points.
3. Use ←/[PREV] or →/[NEXT] to scroll though the list of wireless points, and go to the point you wish to remove, or simply enter the point number.
4. Press [Remove] to remove the RFID point. The keypad removes the device and shows *Point RFID Removed*.
5. Escape from the menu.

19.2.4 [2] RF Repeater Menu > [1] Add Repeater

In this menu, you can add Repeater points.

Add Repeater

B91x/B92x keypads configuration of Add Repeater

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Wireless > [2] RF Repeater Menu > [1] Add Repeater. The keypad lists any repeaters.
3. Use [PREV] or [NEXT] to scroll though the list, and go to the repeater number for which you wish to add a repeater, or simply enter the repeater number.
4. Press [ENTER] to add the device. The keypad instructs you to reset the device.
5. Initiate discovery on a RADION device per the device instructions, or press the RESET button on an Inovonics device.
6. When the keypad shows *Repeater Added*, escape from the menu.

B93x/B94x keypads configuration of Add Repeater

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Program > [2] RF Repeater Menu > [1] Add Repeater. The keypad lists any repeaters.
3. Use ←/[PREV] or →/[NEXT] to scroll though the list, and go to the repeater number for which you wish to add a repeater, or simply enter the repeater number.
4. Press [ENTER] to add the device to the number. The keypad instructs you to reset the device.
5. Initiate discovery on a RADION device per the device instructions, or press the RESET button on an Inovonics device.
6. When the keypad shows *Repeater Added*, escape from the menu.

19.2.5 [2] RF Repeater Menu > [2] Replace Repeater

In this menu, you can replace Repeater points.

Replace Repeater

B91x/B92x keypads use of Replace Repeater

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Wireless > [2] RF Repeater Menu > [2] Replace Repeater. The keypad lists any existing repeaters.
3. Use [PREV] or [NEXT] to scroll though the list of repeaters, and go to the repeater you wish to replace, or simply enter the repeater number.
4. Press [ENTER] to replace the device. The keypad instructs you to reset the new device.
5. Initiate discovery on a RADION device per the device instructions, or press the RESET button on an Inovonics device.
6. When the keypad shows *Repeater Replaced*, escape from the menu.

B93x/B94x keypads use of Replace Repeater

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Program > [2] RF Repeater Menu > [2] Replace Repeater. The keypad lists any existing repeaters.
3. Use ←/[PREV] or →/[NEXT] to scroll though the list of repeaters, and go to the repeater you wish to replace, or simply enter the repeater number.
4. Press [ENTER] to replace the device. The keypad instructs you to reset the new device.

5. Initiate discovery on a RADION device per the device instructions, or press the RESET button on an Inovonics device.
6. When the keypad shows *Repeater Replaced*, escape from the menu.

19.2.6 [2] RF Repeater Menu > [3] Remove Repeater

In this menu, you can replace Repeater points.

Remove Repeater

B91x/B92x keypads use of Remove Repeater

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Wireless > [2] RF Repeater Menu > [3] Remove Repeater. The keypad lists any existing repeaters.
3. Use [PREV] or [NEXT] to scroll though the list of repeaters, and go to the repeater you wish to remove, or simply enter the repeater number.
4. Press [ENTER] to remove the device. The keypad removes the device and shows *Repeater Removed*.
5. Escape from the menu.

B93x/B94x keypads use of Remove Repeater

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Program > [1] RF Point Menu> [3] Remove Point RFID. The keypad lists any existing repeaters.
3. Use ←/[PREV] or →/[NEXT] to scroll though the list of repeaters, and go to the repeater you wish to remove, or simply enter the repeater number.
4. Press [Remove] to remove the repeater. The keypad removes the device and shows *Repeater Removed*.
5. Escape from the menu.

19.2.7 [3] RF Diagnostic Menu > [1] RF Points

You can obtain certain wireless point diagnostic information using a keypad and this menu.

States (for RF points)

B91x/B92x keypads use of States (for RF points)

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Wireless > [3] RF Diagnostic Menu > [1] RF Point Menu> [1] State.
3. Use [PREV] or [NEXT] to scroll though the list, and go to the point for which you wish to view diagnostic information, or enter the point number.
4. Press [ENTER] to view the state. The menu scrolls through the following sub-categories, with the results of the diagnostic check: State, Tamper, Low-Battery, Maintenance.
5. When finished viewing the information, escape from the menu.

B93x/B94x keypads use of States (for RF points)

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Wireless > [3] RF Diagnostic Menu > [1] RF Point Menu> [1] State menu.
3. Use ←/[PREV] or →/[NEXT] to scroll though the list, and go to the point for which you wish to view diagnostic information, or enter the point number and press [ENTER].
4. Press [State] to view the state. The menu scrolls through the following sub-categories, with the results of the diagnostic check: State, Tamper, Low-Battery, Maintenance.
5. When finished viewing the information, escape from the menu.

Signal Strength (for RF points)

B91x/B92x keypads use of Signal Strength (for RF points)

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Wireless > [3] RF Diagnostic Menu > [1] RF Point Menu> [1] Strength.
3. Use [PREV] or [NEXT] to scroll though the list, and go to the point for which you wish to view diagnostic information, or enter the point number.
4. Press [ENTER] to view the signal strength. The menu scrolls through the following sub-categories, with the results of the diagnostic check: Signal Strengths, Level, Margin.
5. When finished viewing the information, escape from the menu.

B93x/B94x keypads use of Signal Strength (for RF points)

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Wireless > [3] RF Diagnostic Menu > [1] RF Point Menu> [1] Strength.
3. Use ←/[PREV] or →/[NEXT] to scroll though the list, and go to the point for which you wish to view diagnostic information, or enter the point number and press [ENTER].
4. Press [Signal] to view the signal strength. The menu scrolls through the following sub-categories, with the results of the diagnostic check: Signal Strengths, Level, Margin.
5. When finished viewing the information, escape from the menu.

19.2.8 [3] RF Diagnostic Menu > [2] RF Repeater Menu

You can obtain certain wireless point diagnostic information using a keypad and this menu/

States (for RF repeaters)

B91x/B92x keypads use of States (for RF repeaters)

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Wireless > [3] RF Diagnostic Menu > [2] RF Repeater Menu > [1] State.
3. Use [PREV] or [NEXT] to scroll though the list, and go to the repeater for which you wish to view diagnostic information, or enter the repeater number.
4. Press [ENTER] to view the state. The menu scrolls through the following sub-categories, with the results of the diagnostic check: State, Missing, Tamper, Low-Battery, Low-Battery.
5. When finished viewing the information, escape from the menu.

B93x/B94x keypads use of States (for RF repeaters)

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Wireless > [3] RF Diagnostic Menu > [2] RF Repeater Menu > [1] State.
3. Use ←/[PREV] or →/[NEXT] to scroll though the list, and go to the repeater for which you wish to view diagnostic information, or enter the repeater number and press [ENTER].
4. Press [State] to view the state. The menu scrolls through the following sub-categories, with the results of the diagnostic check: State, Missing, Tamper, Low-Battery, Low-Battery.
5. When finished viewing the information, escape from the menu.

Signal Strength (for RF repeaters)

B91x/B92x keypads use of Signal Strength (for RF repeaters)

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Wireless > [3] RF Diagnostic Menu > [2] RF Repeater Menu > [1] Strength.

3. Use [PREV] or [NEXT] to scroll though the list, and go to the repeater for which you wish to view diagnostic information, or enter the repeater number.
4. Press [ENTER] to view the signal strength. The menu scrolls through the following sub-categories, with the results of the diagnostic check: Signal Strengths, Level, Margin.
5. When finished viewing the information, escape from the menu.

B93x/B94x keypads use of Signal Strength (for RF repeaters)

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Wireless > [3] RF Diagnostic Menu > [2] RF Repeater Menu > [1] Strength.
3. Use ←/[PREV] or →/[NEXT] to scroll though the list, and go to the repeater for which you wish to view diagnostic information, or enter the repeater number and press [ENTER].
4. Press [Signal] to view the state. The menu scrolls through the following sub-categories, with the results of the diagnostic check: Signal Strengths, Level, Margin.
5. When finished viewing the information, escape from the menu.

19.3 [3] Diags menu

19.3.1 [1] Wireless

The Wireless diagnostics are presented in two different menus for your convenience. Refer to *[3] RF Diagnostic Menu > [1] RF Points, page 138* and *[3] RF Diagnostic Menu > [2] RF Repeater Menu, page 139*.

19.3.2 [2] Network menu

Use the Network menu to view information about the control panel's network connection.

Settings

B91x/B92x keypads use of Settings

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Network > ([1] Bus Module > or [2] On-board) > [1] Settings. The keypad scrolls through the following sub-categories, indicating the programming for: Hostname, iPv4 Source IP, iPv6 Source IP, MAC Address.
3. When finished viewing the information, escape from the menu.

B93x/B94x keypads use of Settings (for the Bus Module)

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Network > ([1] Bus Module > or [2] On-board) > [1] Settings. The keypad shows the following sub-categories, indicating the programming for: Hostname, iPv4 Source IP, iPv6 Source IP, Mac Address.
3. When finished viewing the information, escape from the menu.

Connection

B91x/B92x keypads use of Connection

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Network > ([1] Bus Module > or [2] On-board) > [2] Connection. The keypad scrolls through the following sub-categories, indicating the diagnostic information for: Link, IP Address, DNS, WAN IPv4, WAN IPv6, LAN IPv4, LAN IPv6.
3. When finished viewing the information, escape from the menu.

B93x/B94x keypads use of Connection (for the Bus Module)

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [2] Network > ([1] Bus Module > or [2] On-board) > [2] Connection. The keypad scrolls through the following sub-categories, indicating the diagnostic information for: Link, IP Address, DNS, WAN IPv4, WAN IPv6, LAN IPv4, LAN IPv6.
3. When finished viewing the information, escape from the menu.

19.3.3 [3] Cellular menu

You can obtain certain cellular module diagnostic information using a keypad and this menu.

SDI2 Cellular (1) (B44x diagnostics)

B91x/B92x keypads use of SDI2 Cellular (1)

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [3] Diags Menu > [3] Cellular > [1] SDI2 Cellular (1). The keypad scrolls through the following sub-categories, indicating the diagnostic information for:
   – Link
   – iPv4 IP
   – Base ID
   – Signal (signal strength = unacceptable, marginal, good, or very good)
   – Signal (in dBs)
   – Towers
   – Tel Num
   – ESN
   – Model
   – Version
3. When finished viewing the information, escape from the menu.

B93x/B94x keypads use of SDI2 Cellular (1)

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [3] Diags Menu > [3] Cellular > [1] SDI2 Cellular (1). The keypad scrolls through the following sub-categories, indicating the diagnostic information for:
   – Link
   – iPv4 IP
   – Base ID
   – Signal (signal strength = unacceptable, marginal, good, or very good)
   – Signal (in dBs)
   – Towers
   – Tel Num
   – ESN
   – Model
   – Version
3. When finished viewing the information, escape from the menu.

Plug-in Module (Plug-in Module diagnostics)

B91x/B92x keypads use of Plug-in Module

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [3] Diags Menu > [3] Cellular > [1] Plug-in Module. The keypad scrolls through the following sub-categories, indicating the diagnostic information for:

- Link
- iPv4 IP
- Base ID
- Signal (signal strength = unacceptable, marginal, good, or very good)
- Signal (in dBs)
- Towers
- Tel Num
- ESN
- Model
- Version

3. When finished viewing the information, escape from the menu.

B93x/B94x keypads use of Plug-in Module

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [3] Diags Menu > [3] Cellular > [1] Plug-in Module. The keypad scrolls through the following sub-categories, indicating the diagnostic information for:
   - Link
   - iPv4 IP
   - Base ID
   - Signal (signal strength = unacceptable, marginal, good, or very good)
   - Signal (in dBs)
   - Towers
   - Tel Num
   - ESN
   - Model
   - Version
3. When finished viewing the information, escape from the menu.

19.3.4 [4] IP Camera

IP Camera

B91x/B92x keypads use of IP Camera

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [3] Diags Menu > [4] IP Camera. The keypad shows one of the following statuses:
   - Not Configured
   - Not responding
   - Bad Password
   - Online
   - Missing
3. When finished viewing the information, escape from the menu.

B93x/B94x keypads use of SDI2 Cellular (1)

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [3] Diags Menu > [4] IP Camera. The keypad shows one of the following statuses:
   - Not Configured
   - Not responding
   - Bad Password
   - Online
   - Missing
3. When finished viewing the information, escape from the menu.

19.4 [4] Serv Byp (Service Bypass) menu

In this menu, you can edit the Service Bypass points.

Service Bypass

B91x/B92x keypads use of Service Bypass to bypass points

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [4] Srvc Byp. If no points have been bypassed the keypad shows No points bypassed. If points are bypassed, the keypad lists the number of bypassed points.
3. Enter number for the point to bypass, and the press [ENTER] to select the point.
4. Press [ENTER] to bypass the point. The keypad shows *Parameter Saved*, and then returns to the point you just bypassed.
5. Escape from the menu.

B93x/B94x keypads use of Service Bypass to bypass points

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [4] Srvc Byp menu. If no points have been bypassed the keypad shows No points bypassed. If points are bypassed, the keypad lists the number of bypassed points.
3. Enter number for the point to bypass, and then press [ENTER].
4. Press [Bypass] to bypass the point. The keypad shows *Parameter Saved*, and then returns to the point you just bypassed.
5. Escape from the menu.

19.5 [5] Versions menu

Use the Versions menu to view control panel version information.

B91x/B92x keypads use of Versions

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [5] Versions.
3. Use [PREV] or [NEXT] to cycle through the list of items for which you can view the version.
4. Press [ENTER] to view the version.
5. Escape from the menu.

B93x/B94x keypads use of Versions

1. Enter the installer passcode, and then open the [1] Installer menu.
2. Go to [5] Versions.
3. Press the icon or softkey for the item for which you wish view the version.
4. The keypad shows the version.
5. Escape from the menu.

20 Specifications

Control panel power supply specifications

Voltage input (power supply)	Primary	18 VAC terminals	18 VAC 22 VA Class 2 transformer (CX4010)
	Secondary	BAT terminals	12 Volt Sealed Lead Acid Rechargeable Battery (D126 or D1218)
Current requirements	Control Panel: Idle 125 mA; Alarm 155 mA Refer to the *Standby battery requirements and calculations* section in thecontrol panel's *Installation and System Reference Guide* (this document) for the current draw requirements of other system components.		
Power outputs	All external connections are power-limited. The battery terminals are not power limited.		
	SDI2 terminals and interconnect connector	PWR/R and COM/B terminals	800 mA for continuously powered devices. Shared with AUX power terminal.
	Alarm power output	OUTPUT A terminal	1.3 A for Burglary applications. Output can be steady or one of four pulsed patterns depending on programming. Refer to *Outputs* in *RPS Help* or the control panel's *Program Entry Guide*..
	Aux power	AUX and COM terminals	800 mA for continuously powered devices. Shared with SDI2 R/PWR terminal and interconnect connector.
	Fire and Fire/ Burglary Systems	Alarm power output for OUTPUT A cannot exceed 500 mA.	
Minimum operating voltage	10.2 VDC (The control panel might operate below this voltage, but it will cease to operate as an alarm panel.)		
SDI2 bus	12 VDC nominal (7500 ft combined length) maximum		
Ethernet connection (optional)	10BASE-T 100BASE-TX		
Battery discharge/ recharge schedule	Discharge cycle	13.65 VDC - Charging float level. 12.1 VDC - Low Battery Report, if programmed. 10.2 VDC - Minimum operational voltage.	
	Recharge Cycle	AC ON - Battery charging begins and AC Restoral Reports sent. 13.4 V - Battery Restoral Report sent. Battery float charged.	
Environmental	Temperature	0°C to +49°C (+32°F to 122°F)	
	Relative Humidity	5% to 93% at +32°C (+90°F) non-condensing	
Arming stations	B915 Basic Keypads, B920 Two-line Alphanumeric Keypads (SDI2), B921C Two-line Alphanumeric Keypads (SDI2), B930 ATM Style Alphanumeric Keypads (SDI2), B942/B942W Touch Screen keypads		

Point thresholds	On-board points 1 to 8	Open - 3.7 to 5.0 VDC Normal - 2.0 to 3.0 VDC Short - 0.0 to 1.3 VDC Short circuit current - 5 mA
Compatible enclosures	B10 Medium Control Panel Enclosure, B11 Small Control Panel Enclosure, D2203 Enclosure, D8103 Universal Enclosure, D8108A Attack Resistant Enclosure, and D8109 Fire Enclosure	

20.1 Wire requirements

Terminal label	Terminal description	Requirements
18VAC	AC	18 AWG min (up to 12 AWG max)
⏚	Earth ground	16 AWG min (up to 14 AWG max)
BAT +	Battery +	Bosch supplied wire lead, included with control panel.
BAT -	Battery -	Bosch supplied wire lead, included with control panel.
OUTPUT A NO	Output A normally open	22 AWG min (up to 12 AWG max)
OUTPUT A C	Output A common	
OUTPUT A NC	Output A normally closed	
COM	Common	
AUX	+ AUX power	
PWR/R	SDI2 power	22 AWG min (up to 12 AWG max)
A/Y	SDI2 data bus A	22 AWG min (up to 12 AWG max)
B/G	SDI2 data bus B	22 AWG min (up to 12 AWG max)
COM/B	SDI2 common	22 AWG min (up to 12 AWG max)
1	Point 1	22 AWG min (up to 12 AWG max)
COM	Point 1/2 common	
2	Point 2	
3	Point 3	
COM	Point 3/4 common	
4	Point 4	
5	Point 5	
COM	Point 5/6 common	
6	Point 6	
7	Point 7	
COM	Point 7/8 common	

8	Point 8	
OUTPUT B	Output B	22 AWG min (up to 12 AWG max)
OUTPUT C	Output C	

21 Reporting and device number information

21.1 Report format definitions

Notice!
Control panels using Modem4 send 4-digit Point and User data.

Panel event	Modem4 code D6500 mode	Modem4 code Bosch SIA mode	Contact ID event	Contact ID code
A point supervisory condition occurred	Jsppp	NriaBSpppp	24 hour Non-Burglary	1 150 aa ppp
A valid local RPS access occurred	RsF01	NLS	Successful Download/ Access	1 412 00 000
A valid remote RPS access callback occurred	RsssF	NphhhRS	Successful Download/ Access	1 412 00 000
A valid remote RPS access occurred	RsssF	NRS	Successful Download/ Access	1 412 00 000
AC Fail – mains power supply	Pssss	NAT	AC Loss	1 301 00 000
AC Restore – mains power supply	Rsss0	NAR	AC Loss	3 301 00 000
Add Key Fob to a User (Assign Card Event)	NsD30	NidiiiiDAiiii	Local Only	Local Only
Alarm	Aspppp	NriaBApppp	Burglary	1 130 aa ppp
Alarm Cross Point	Aspppp	NriaBMpppp	Burglary	1 130 aa ppp
Alarm Exit Error	Aspppp	Nria/idiiiiEApppp	Entry/Exit	1 134 aa ppp
Alarm with Recent Closing	Aspppp	Nria/CRpppp	Entry/Exit	1 459 aa uuu
All Points Tested by User	RsssF	NRilTC	Local Only	Local Only
All SDI devices are missing, power is shorted	TsssD	NpiET	Expansion Module Failure	1 333 00 000
All SDI devices are restored, power is normal	RsssD	NpiER	Expansion Module Failure	3 333 00 000
An invalid RPS remote access callback occurred	TsssF	Np004RU	Unsuccessful Access	1 413 00 000
An invalid RPS remote access occurred	TsssF	NRU	Unsuccessful Access	1 413 00 000
Area Watch End	NsD52	Nriaa/idiiiiTZ	Local Only	Local Only
Area Watch Start	NsD51	Nriaa/idiiiiTW	Local Only	Local Only
Armed PartOn delay	Csiiii	Nriaa/idiiiiNL	Armed STAY	3 441 aa uuu
Armed PartOn instant	Csiii	Nriaa/idiiiiNL	Armed STAY	3 441 aa uuu

Panel event	Modem4 code D6500 mode	Modem4 code Bosch SIA mode	Contact ID event	Contact ID code
Battery Charger Circuit Trouble	Tsss9	NYT	System Trouble	1 300 00 000
Battery Charger Circuit Trouble Restoral	Rsss9	NYR	System Trouble Restore	3 300 00 000
Bypass by Sked	Nspppp	Nriaa/ aikkkUBpppp	Zone/Sensor Bypass	1 570 aa ppp
Bypass by User	Nspppp	Nriaa/ idiiiiUBpppp	Zone/Sensor Bypass	1 570 aa ppp
Cellular Fewer than Two Towers	TssssD	NpiddddET	System Peripheral Trouble	1 330 00 zzz
Cellular Fewer than Two Towers Restoral	RssssD	NpiddddER	System Peripheral Trouble Restore	3 330 00 zzz
Cellular Low Signal	TssssD	NpiddddET	System Peripheral Trouble	1 330 00 zzz
Cellular Low Signal Restoral	RssssD	NpiddddER	System Peripheral Trouble Restore	3 330 00 zzz
Cellular No Tower Available	TssssD	NpiddddET	System Peripheral Trouble	1 330 00 zzz
Cellular No Tower Available Restoral	RssssD	NpiddddER	System Peripheral Trouble Restore	3 330 00 zzz
Cellular Service Not Activated	TssssD	NpiddddET	System Peripheral Trouble	1 330 00 zzz
Cellular Service Not Activated Restoral	RssssD	NpiddddER	System Peripheral Trouble Restore	3 330 00 zzz
Change another's password or card	NsDO4	NidiiiiiJViiiii	Local Only	Local Only
Change own password	NsDO4	NidiiiiiJViiiii	Local Only	Local Only
Checksum failure on configuration memory	TsD15	NYF	RAM Checksum Bad	1 303 00 000
Closing by Account	Csiiii	NidiiiiCL	O/C by account	3 401 00 uuu
Closing by Area	Csiiii	Nriaa/idiiiiCL	O/C by User	3 401 aa uuu
Closing Early by Area	Csiiii	Nriaa/idiiiiCK	Early O/C	3 451 aa uuu
Closing Late by Area	Csiiii	Nriaa/idiiiiCJ	Late O/C	3 452 aa uuu
Communication failure by route group	TsB01	NrggYC	Failure to communicate event	1 354 00 000
Communication failure by route group restored	NsB01	NrggYK	Failure to communicate event	3 354 00 000
Communication trouble by network	TsB01	NpiddddYS	Communication Trouble	1 350 00 [1]zzz

Panel event	Modem4 code D6500 mode	Modem4 code Bosch SIA mode	Contact ID event	Contact ID code
Communication trouble by network restored	NsB01	NpiddddYK	Communication trouble	3 350 00 [1]zzz
Communication trouble by phone	TsB01	NphhhYS	Communication Trouble	1 350 00 000
Communication trouble by phone restored	NsB01	NphhhYK	Communication Trouble	3 350 00 000
Configuration Failure (Device)	TssssD	NpiddddEP	System Peripheral Trouble	1 330 00 zzz
Configuration Failure Restoral (Device)	RssssD	NpiddddER	System Peripheral Trouble Restoral	3 330 00 zzz
Control panel battery low	Tsss9	NYT	Low System Battery	1 302 00 000
Control panel battery missing	Tsss9	NYM	Battery Missing/Dead	1 311 00 000
Control panel battery restored to normal	Rsss9	NYR	Low System Battery	3 302 00 000
Control panel Off-line	TsssF	Nid5002TS	System Shutdown	1 308 00 F02
Control panel on-line	RsssF	Nid5002TE	System Shutdown	3 308 00 F02
Create Status Report	Sssss	NYY	Status Report to Follow	1 605 00 000
Date changed – no user indentified	NsD07	NJD	Time/Date Reset	1 625 00 000
Date changed by user	NsD07	NidiiiiJD	Time/Date Reset	1 625 00 uuu
Delete User by User	NsD05	NidiiiiJXiiii	Local Only	Local Only
DNS Failure	TsB01	NpiddddYS	Communication Trouble	1 350 00 [1]zzz
DNS Failure Restore	NsB01	NpiddddYK	Communication Trouble	3 350 00 [1]zzz
Duress	Diiii	Nriaa/idiiiiHA	Duress	1 121 aa uuu
Equipment Fail	TsD29	NpiddddIA	System Peripheral Trouble	1 330 00 [1]zzz
Equipment Restore	RsD29	NpiddddIR	System Peripheral Trouble Restore	3 330 00 [1]zzz
Event Log Overflow	AsD01	NJO	Event Log Overflow	1 624 00 000
Event Log Threshold has been reached	TsD01	NJL	Event Log 90% Full	1 623 00 000
Extend Close Time by Area	TsD26	Nriaa/idiiii/ tihhmmCE	Auto-arm Time Extended	1 464 aa uuu
Extra Point	Tpppp	NriaaXEpppp	Maintenance Alert	1 393 aa ppp
Fail To Close by Area	TsssE	NriaCl	Failed to Close	1 454 aa 000
Fail to Open by Area	TsssE	NriaOl	Failed to Open	1 453 aa 000

Panel event	Modem4 code D6500 mode	Modem4 code Bosch SIA mode	Contact ID event	Contact ID code
Fire Alarm	Fspppp	NriaaFApppp	Fire	1 110 aa ppp
Fire Cancel	\iiii	Nriaa/idiiiiFC	Cancel	1 406 aa uuu
Fire Missing	Mpppp	NriaaFYpppp	Fire Trouble	1 373 aa ppp
Fire Restoral from Alarm	Hspppp	NriaaFHpppp	Fire	3 110 aa ppp
Fire Restoral from Trouble	Hspppp	NriaaFJpppp	Fire Trouble	3 373 aa ppp
Fire Supervision	Espppp	NriaaFSpppp	Fire Supervisory	1 200 aa ppp
Fire Supervision from Restore	Espppp	NriaaFVpppp	Fire Supervisory	3 200 aa ppp
Fire Trouble	Gspppp	NriaaFTpppp	Fire Trouble	1 373 aa ppp
Fire Walk Test End	RsssF	Nriaa/idiiiiFK	Fire Test	3 604 aa uuu
Fire Walk Test Start	TsssF	Nriaa/idiiiiFI	Fire Test	1 604 aa uuu
Forced Armed PartOn Delay	Csiiii	Nriaa/idiiiiNF	Partial Arm	3 456 aa uuu
Forced Armed PartOn Instant	Csiiii	Nriaa/idiiiiNF	Partial Arm	3 456 aa uuu
Forced Close Early by Area	Csiiii	Nriaa/idiiiiCF	Early O/C	3 451 aa uuu
Forced Close Late by Area	Csiiii	Nriaa/idiiiiCF	Late O/C	3 452 aa uuu
Forced Closing by Area	Csiiii	Nriaa/idiiiiCF	O/C by User	3 401 aa uuu
Forced Point	Tspppp	NriaaXWpppp	Zone/Sensor Bypass	1 570 aa ppp
Gas Alarm	Apppp	NriaaGApppp	Gas Detected	1 151 aa ppp
Gas Alarm Restore	Rpppp	NriaaGHpppp	Gas Det Restore	3 151 aa ppp
Gas Cancel	\iiii	Nriaa/idiiiiGC	Cancel	1 406 aa iii
Gas Missing	Vpppp	NriaaUZpppp	Sensor Trouble	1 380 aa ppp
Gas Supervisory	Jpppp	NriaaGSpppp	Sensor Trouble	1 380 aa ppp
Gas Supervisory Restore	Rpppp	NriaaGJpppp	Sensor Trouble Restore	3 380 aa ppp
Gas Trouble	Tpppp	NriaaGTpppp	Sensor Trouble	1 380 aa ppp
Gas Trouble Restore	Rpppp	NriaaGJpppp	Sensor Trouble Restore	3 380 aa ppp
Invalid Key Fob	VsD10	NidiiiiUY	Latch-Key Supervision	1 642 00 iii
Invalid Key Fob Restoral	RsD10	NidiiiiUR	Latch-Key Supervision Rest.	3 642 00 iii
Invalid local access detected	TsF01	NLU	Unsuccessful access	1 413 00 000
Invalid Point Transmitter	Vpppp	NriaaUYpppp	Loss of Supervision –RPM	1 382 aa ppp
Invalid Point Transmitter Restore	Rpppp	NriaaBRpppp	Loss of Supervision –RPM	3 382 aa ppp
IP Address Error	TsssD	NpiddddET	System Peripheral Trouble	1 330 00 [1]zzz

Panel event	Modem4 code D6500 mode	Modem4 code Bosch SIA mode	Contact ID event	Contact ID code
IP Address Error	RsssD	NpiddddER	System Peripheral Trouble Restore	3 330 00 [1]zzz
Key fob Missing	VsD10	NidiiiiUY	Latch-Key Supervision	1 642 00 iii
Key fob Missing Restoral	RsD10	NidiiiiUR	Latch-Key Supervision Rest.	3 642 00 iii
Key fob Panic	Assss	NidiiiiPA	Duress Alarm	1 121 00 iii
Key fob Silent (Hold Up) Alarm	Dssss	NidiiiiHA	Duress Alarm	1 121 00 iii
Keypad Panic Alarm	Apppp	Nriaa/PApppp	Panic Alarm	1 120 aa ppp
Keypad Silent (Hold-Up) Alarm	Dpppp	Nriaa/HApppp	Silent Alarm	1 122 aa ppp
Medical Alarm	Apppp	Nriaa/MApppp	Personal Emergency	1 101 aa ppp
Missing Alarm	Mpppp	NriaaUZpppp	General Alarm	1 140 aa ppp
Missing Fire Supervision	GMpppp	NriaaFZpppp	Fire Trouble	1 200 aa ppp
Missing Gas Supervision	Vpppp	NriaaGSpppp	Sensor Trouble	1 380 aa ppp
Missing Supervision	MTpppp	NriaaBZpppp	Loss of Supervision –RPM	1 382 aa ppp
Missing Trouble	Vpppp	NriaaUYpppp	Loss of Supervision - RPM	1 382 aa ppp
Network Cable Connected	NsD43	NpiddddNR010	System Peripheral Trouble Restore	3 330 00 zzz
Network Cable Disconnected	NsD42	NpiddddNT010	System Peripheral Trouble	1 330 00 zzz
Non-Fire Cancel Alarm	\siiii	Nriaa/idiiiiBC	Cancel	1 406 aa uuu
Normal start-up of the control panel	NsD14	NRR	System Reset	1 305 00 000
Opening by Account	OSiiii	NidiiiiOP	O/C by account	1 401 00 uuu
Opening by Area	Osiiii	Nriaa/idiiiiOP	O/C by user	1 401 aa uuu
Opening Early by Area	Osiiii	Nriaa/idiiiiOK	Early O/C	1 451 aa uuu
Opening Late by Area	Osiiii	Nriaa/idiiiiOJ	Late O/C	1 452 aa uuu
Parameters changed	NsD02	NYG	Panel Programming Changed	1 306 00 000
Personal Notification Communication Trouble	TsB01	NpiddddYS	Communication Trouble	1 350 0 zzz
Personal Notification Communication Trouble Restore	NsB01	NpiddddYK	Communication Trouble Restore	3 350 0 zzz

Panel event	Modem4 code D6500 mode	Modem4 code Bosch SIA mode	Contact ID event	Contact ID code
Phone Line Missing 1	TsssB	NLT1	Telco 1 Fault	1 351 00 000
Phone Line Restored 1	RsssB	NLR1	Telco 1 Fault	3 351 00 000
RAM Fail with RPS	TsF02	NRA	Unsuccessful access	1 413 00 000
Re-Boot	NsD14t	NRR	System Reset	1 305 00 000
Relay Reset by Sked	NsD20	NaikkkROrrrr	Sounder/Relay	3 320 00 000
Relay Reset by User	NsD18	NidiiiiROrrrr	Sounder/Relay	3 320 00 000
Relay Set by Sked	NsD19	NaikkkRCrrrr	Sounder/Relay	1 320 00 000
Relay Set by User	NsD28	NidiiiiRCrrrr	Sounder/Relay	1 320 00 000
Remote Reset – System was reset by RPS	NsD11	NRN	System Reset	1 305 00 000
Remove User's Key Fob (Assign Card Event)	NsD30	NidiiiiDAuuuu	Local Only	Local Only
Replace Sensor	Tpppp	NriaaBTpppp	Maintenance Alert	1 393 aa ppp
Replace Sensor Restore	Rpppp	NriaaBRpppp	Maintenance Alert Restore	3 393 aa ppp
Replace User's Key Fob (Assign Card Event)	NsD30	NidiiiiDAuuuu	Local Only	Local Only
Restoral	Rpppp	NriaaBRpppp	Sensor Trouble	3 380 aa ppp
Restoral from Alarm	Rpppp	NriaaBHpppp	Burglary	3 130 aa ppp
RF Interference	TsD08	NpiddddXQ	RF RCVR Jam	1 344 00 [1]zzz
RF Interference Restore	RsD08	NpiddddXH	RF RCVR Jam Restore	3 344 00 [1]zzz
RF Transmitter	Hss001	NriaaFRpppp	Maintenance Alert	3 393 aa ppp
RF Transmitter Low Battery	Tspppp	NriaaXTpppp	RF Low Battery	1 384 aa ppp
RF Transmitter Low Battery (Key Fob)	TsD10	NidiiiiXT	Battery Test Failure	1 309 00 uuu
RF Transmitter Low Battery (Key Fob) Restore	RsD10	NidiiiiXR	Battery Test Restore	3 309 00 uuu
RF Transmitter Low Battery Restore	Rspppp	NriaaXRpppp	RF Low Battery	3 384 aa ppp
RF Transmitter Maintenance	Gss001	NriaaFTpppp	Maintenance Alert	1 393 aa ppp
ROM Checksum Fail	AsD12	NYX	ROM Checksum bad	1 304 00 000
SDI Device AC Fail	TsssD	NEP	Exp. Module AC Loss	1 342 00 [1]zzz
SDI Device AC Fail Restore	RsssD	NEQ	Exp. Module AC Restore	3 342 00 [1]zzz
SDI device is missing	TssssD	NpiddddET	Expansion Module Failure	1 333 00 000
SDI device is restored	RssssD	NpiddddER	Expansion Module Failure	3 333 00 000

Panel event	Modem4 code D6500 mode	Modem4 code Bosch SIA mode	Contact ID event	Contact ID code
SDI Device Low Battery	TsssDt	NpiddddEBbb	Exp. Module Low Batt.	1 338 00 [1]zzz
SDI Device Low Battery Restore	RsssDt	NpiddddEVbb	Exp. Module Batt. Restore	3 338 00 [1]zzz
SDI Device Missing	TsssDt	NpiddddEM	Exp. Module Failure	1 333 00 [1]zzz
SDI Device Missing Battery	TsssDt	NpiddddEBbb	Exp. Module Low Batt.	3 338 00 [1]zzz
SDI Device Missing Battery Restore	RsssDt	NpiddddEVbb	Exp. Module Low Batt. Restore	3 338 00 [1]zzz
SDI Device Missing Restore	RsssDt	NpiddddEN	Exp. Module Failure Restore	3 333 00 [1]zzz
SDI Device Over Current	TsssD	NYI	PS Over Current	1 312 00 [1]zzz
SDI Device Over Current Restore	RsssD	NYJ	PS Over Current Restore	3 312 00 [1]zzz
SDI Device Tamper	TsssD	NES	Exp. Module Tamper	1 341 00 [1]zzz
SDI Device Tamper Restore	TsssD	NES	Exp. Module Tamper Restore	3 341 00 [1]zzz
SDI Device Trouble	TsssD	NET	System Peripheral Trouble	1 330 00 [1]zzz
SDI Device Trouble Restore	RsssD	NER	System Peripheral Trouble Restore	3 330 00 [1]zzz
SDI2 device is missing	TsssD	NpiddddEM	Expansion Module Failure	1 333 00 000
SDI2 device is restored from missing	RsssD	NpiddddEN	Expansion Module Failure	3 333 00 000
SDI2 Open Trouble	TsssD	NpiiddddET	Expansion Module Failure	1 333 00 [1]zzz
SDI2 Open Trouble Restoral	RsssD	NpiddddER	Expansion Module Failure	3 333 00 [1]zzz
Sensor Reset	NsD27	Nriaa/idiiiiXlrrrr	Sounder/Relay	3 320 00 000
Service Bypass	Npppp	NriaaUBpppp	Service Request	1 616 aa ppp
Service Bypass Cancel	RBpppp	NriaaUUpppp	Service Request	3 616 aa ppp
Service Smoke Detector	Tpppp	NriaaASpppp	Maintenance Alert	1 393 aa ppp
Service Smoke Detector Restore	Rpppp	NriaaANpppp	Maintenance Alert Restore	3 393 aa ppp
Service Walk Test End	RsssF	NidiiiiTE	Service On/Off Premises	3 466 aa uuu
Service Walk Test Start	TsssF	Nriaa/idiiiiTS	Service On/Off Premises	1 466 aa uuu
Sked Changed – No User Identified	NsD06	NaikkkJS	Schedule Change	1 630 00 000
Sked Changed by User	NsD06	Nidiiii/aikkkJS	Schedule Change	1 630 00 000
Sked has Executed	NsD25	NaikkkJR	Local Only	Local Only

Panel event	Modem4 code D6500 mode	Modem4 code Bosch SIA mode	Contact ID event	Contact ID code
Status: Burg Alarm	SApppp	OriaaBApppp	NA	NA
Status: Burg Supervisory	STpppp	OriaaBSpppp	NA	NA
Status: Burg Trouble	STpppp	OriaaBTpppp	NA	NA
Status: Close by Area	SCssss	OriaCL	NA	NA
Status: Fire Alarm	SFpppp	OriaaFApppp	NA	NA
Status: Fire Supervisory	SEpppp	OriaaFSpppp	NA	NA
Status: Fire Trouble	SGpppp	OriaaFTpppp	NA	NA
Status: Gas Alarm	SApppp	NriaaGAppp	NA	NA
Status: Gas Supervisory	SJpppp	NriaaGSppp	NA	NA
Status: Gas Trouble	STpppp	NriaaGTppp	NA	NA
Status: Open by Area	SOssss	OriaOP	NA	NA
Swinger Bypass	Nsppp	NriaaUBpppp	Swinger Bypass	1 575 aa ppp
Test Report – System Normal, Expanded Status	RsssE	NRP & see D6600 CIM for Status Items	Periodic Test Report	1 602 00 000
Test Report – System Normal, Non-expanded Status	RsssE	NRP	Periodic Test Report	1 602 00 000
Test Report – System Off-normal, Expanded Status	RsssE	NRY & see D6600 CIM for Status Items	Periodic Test – System Trouble Present	1 608 00 000
Test Report – System Off-normal, Non-expanded Status	RsssE	NRY	Periodic Test – System Trouble Present	1 608 00 000
Time Changed – No User Identified	NsD07	NJT	Time/Date Reset	1 625 00 000
Time Changed by Receiver Sync	NsD07	Nid5001JT	Time/Date Reset	1 625 00 F01
Time Changed by User	NsD07	NidiiiiJT	Time/Date Reset	1 625 00 uuu
Trouble	Tspppp	NriaaBTpppp	Sensor Trouble	1 380 aa ppp
Unverified Event	Kpppp	NriaaUGpppp	Cross-Zone Trouble	1 378 aa ppp
User Authority level has changed	NsD40	NidiiiiJZiiii	Local Only	Local Only
User Passcode Tamper – Too Many Attempts	NsD03	NriaJA	Wrong Code Entry	1 461 aa 000
Walk Test End	RsssF	Nriaa/idiiiiTE	Walk Test Mode	3 607 aa uuu
Walk Test Start	TsssF	Nriaa/idiiiiTS	Walk Test Mode	1 607 aa uuu

Panel event	Modem4 code D6500 mode	Modem4 code Bosch SIA mode	Contact ID event	Contact ID code
Watchdog Reset	NsD09	NpiddddYW	System Reset	1 305 00 000
Watchdog Reset – SDI Device Reported identifies the Source	NsD09	NpiddddYW	System Reset	1 305 00 000

21.2 SDI2 address information

Notice!
All point numbers, user ID's, output numbers, and device identifier numbers are formatted as 4-digit numbers (right justified with zero's) when transmitted from the control panel in Modem4 format.

SDI2 address	zzz data values	Description
01-08	001-008	SDI2 Keypad 1 through 8
01-04	201-204	SDI2 Octo-input Modules 1 through 4
01-05	301-305	SDI2 Octo-output Modules 1 through 5
1	801	SDI2 Premises RF Module
N/A	851-858	SDI2 RF Repeater 1 through 8
1	401	SDI2 Network Module 1
01-04	501-504	SDI2 Power Supply Module 1 through 8
01-08	901-916	SDI2 Keypads 1 through 16
1	411, 421, 431, 441	Routes 1 through 4 on SDI2 Network Module 1
99	499	DNS lookup error of RPS hostname

21.3 Device numbers (zzz, dddd)

SDI2	2 – 25	201 – 224	Octo-Input Modules 1 through 24
SDI2	66 – 77	301 – 312	Octo-Output Modules 1 through 12
SDI2	151	801	Premises RF Module
SDI2	161 – 168	851 – 858	RF Repeaters 1 through 8
SDI2	173	401	Network Module 1
SDI2	174	402	Network Module 2
SDI2	176 - 183	501 – 508	Power Supply Modules 1 through 8
SDI2	200 - 216	901 – 916	Keypads 1 through 16

21.4 Communication Trouble device numbers (zzzz)

SDI2	11, 21, 31, 41	411, 421, 431, 441	Paths 1 through 4 on SDI2 Network Module 1
SDI2	12, 22, 32, 42	412, 422, 432, 442	Paths 1 through 4 on SDI2 Network Module 2
any	99	499	Used for DNS lookup error of RPS hostname

21.5 Special User IDs (uuuu, iiii)

To better identify the originator of some control panel events with no unique, Standard User identified, special user IDs designate each special case. All user ID are defined in the table below.

User ID Type	Keypad Display	Contact ID reporting	Modem Format	User Text
Service User	0	F00	0	“SERVICE USER”
Standard User	1...50	001...50	1...50	{configured text}
Time Sync	5001	F01	5001	“AUTO TIME SYNC”
RPS User	5002	F02	5002/none	“BY RPS”
Automation User	5003	F03	5003/none	“BY AUTOMATION”
Keyswitch	5004	F04	5004	“BY KEYSWITCH”
No User Specified	User not displayed	000	0xFFFF (displays blank)	{no text}

21.6 Keypad alarm virtual point numbers (ppp, pppp)

Special point numbers have been designated to identify the originator of manually created keypad alarm events. All special point numbers are defined in the table below.

Originating Keypad	Reported Number
Keypad 1	330
Keypad 2	340
Keypad 3	350
Keypad 4	360
Keypad 5	370
Keypad 6	380
Keypad 7	390
Keypad 8	400

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